

Tackling Dependency

Europe is facing a future of augmenting energy demands, domestic depletion, high prices and other energy-political challenges. Climate change, infrastructure resilience, producers' coercive energy policy and the EU's internal market failures have put stress on the EU's emerging energy policy and inspired the union to address its challenges with greater enthusiasm than before. Some of the EU's challenges call for strategic choices of a magnitude that EU is not used to handle. The aim of this report is therefore to identify, analyse and assess the political side of Europe's energy predicament and import dependency. Against the background of increasing dependence on energy imports, the report tries to answer questions: what are the key dimensions of Europe's energy security and what are their consequences?

Robert L. Larsson is a security policy analyst at the Division for Defence Analysis at the Swedish Defence Research Agency (FOI) who specialises in energy and security policy of Russia and the Caucasus.

Cover photo: Yamal pipeline from Russia to Europe
Photo: © BASF, 2004

FOI, Swedish Defence Research Agency, is a mainly assignment-funded agency under the Ministry of Defence. The core activities are research, method and technology development, as well as studies conducted in the interests of Swedish defence and the safety and security of society. The organisation employs approximately 1000 personnel of whom about 800 are scientists. This makes FOI Sweden's largest research institute. FOI gives its customers access to leading-edge expertise in a large number of fields such as security policy studies, defence and security related analyses, the assessment of various types of threat, systems for control and management of crises, protection against and management of hazardous substances, IT security and the potential offered by new sensors.



FOI
Swedish Defence Research Agency
Defence Analysis
SE-164 90 Stockholm

Phone: +46 8 555 030 00
Fax: +46 8 555 031 00

www.foi.se



Tackling
Dependency

ROBERT L. LARSSON

Tackling Dependency: The EU and its Energy Security Challenges



Robert L. Larsson

FOI-R--2311--SE
ISSN 1650-1942

Base data report
October 2007

Defence Analysis

Tackling Dependency

The EU and its Energy Security Challenges

Robert L. Larsson

Division for Defence Analysis
Swedish Defence Research Agency (FOI)

FOI – Swedish Defence Research Agency Defence Analysis SE-164 90 Stockholm	FOI-R—2311—SE	Base data report
	Research area code	
	1. Security, safety and vulnerability analyses	
	Month year	Project no.
	Oktober 2007	A12004
Sub area code		11 Policy Support to the Government (Defence)
Sub area code 2		
Author/s (editor/s) Robert L. Larsson +46 8 55 50 37 60 robert.larsson@foi.se	Project manager	
	John Rydqvist	
	Approved by	
	Mike Winnerstig	
Sponsoring agency		Ministry of Defence
Scientifically and technically responsible		
Report title Tackling Dependency: The EU and its Energy Security Challenges		
Abstract <p>Europe is facing a future of augmenting energy demands, domestic depletion, high prices and other energy-political challenges. Climate change, infrastructure resilience, producers' coercive energy policy and the EU's internal market failures have put stress on the EU's emerging energy policy and inspired the union to address its challenges with greater enthusiasm than before. Some of the EU's challenges call for strategic choices of a magnitude that EU is not used to handle. The aim of this report is therefore to identify, analyse and assess the political side of Europe's energy predicament and import dependency. Against the background of increasing dependence on energy imports, the report tries to answer questions: what are the key dimensions of Europe's energy security and what are their consequences?</p>		
Keywords EU, energy, energy security, oil, gas, electricity, OPEC, pipelines, Russia, security policy, foreign policy, lever, trade, dependency, vulnerability		
Further bibliographic information The report can be downloaded from www.foi.se .	Language English	
ISSN 1650-1942	Pages 80 p.	
		Price acc. to pricelist

FOI - Totalförsvarets forskningsinstitut Försvarsanalys 164 90 Stockholm	FOI-R—2311—SE	Underlagsrapport
	Forskningsområde	
	1. Analys av säkerhet och sårbarhet	
	Månad, år	Projektnummer
	October 2007	A12004
Delområde		
11 Forskning för regeringens behov		
Delområde 2		
Författare/redaktör Robert L. Larsson 08-55 50 37 60 robert.larsson@foi.se	Projektledare	
	John Rydqvist	
	Godkänd av	
	Mike Winnerstig	
	Uppdragsgivare/kundbeteckning	
Försvarsdepartementet		
Tekniskt och/eller vetenskapligt ansvarig		
Rapportens titel		
Att tackla beroende: EU och dess energisäkerhetsrelaterade utmaningar		
Sammanfattning		
<p>Europa står inför en framtid med ökade energibehov, inhemsk uttömning, höga energipriser och andra energipolitiska utmaningar. Klimatförändringar, infrastrukturens robusthet, producenters hårdföra energipolitik och EU:s interna marknadsproblem har utsatt EU:s begynnande energipolitik för hårda prövningar och inspirerat unionen att anta utmaningarna på ett sätt som inte syns tidigare. En del av EU:s utmaningar kräver emellertid att EU gör strategiska val på ett sätt som det inte är van vid. Syftet med föreliggande rapport är därför att identifiera, analysera och bedöma den politiska sidan av EU's energi situation och importberoende. Mot bakgrund av det ökande beroendet av energiimport försöker studien besvara frågorna: vilka är de viktigaste dimensionerna av Europa's energisäkerhet och vad är deras konsekvenser?</p>		
Nyckelord		
EU, energi, energisäkerhet, olja, gas, el, kärnkraft, OPEC, pipelines, Ryssland, säkerhetspolitik, utrikespolitik, hävstång, handel, beroende, sårbarhet		
Övriga bibliografiska uppgifter	Språk Engelska	
Rapporten kan laddas ned från: www.foi.se .		
ISSN 1650-1942	Antal sidor: 80 s.	
Distribution enligt missiv	Pris: Enligt prislista	

Preface

The Swedish Defence Research Agency (FOI) is an authority under the Ministry of Defence (MOD) of Sweden. This study was commissioned by the MOD and conducted at FOI's Division for Defence Analysis. It was carried out over a period of six weeks within the project on Global Strategic Development (GSU), headed by John Rydqvist, but also draws on the research carried out within the project Russian Foreign, Defence and Security Policy (RUFSS), headed by Jan Leijonhielm, and Nordic Security and Stability (NOSS), headed by Bo Ljung.

Within the GSU, RUFSS and NOSS projects, reports on energy and security have been produced over many years and this report should be seen as part of FOI's focus on energy security that encompasses detailed studies on specific states, regions and themes carried out by FOI's various study groups.¹ Among the reports are 'India's Quest for Energy Security',² 'China's Quest for Energy'³ and 'Energy in Asia'⁴ by Ingolf Kiesow; 'Energy in China'⁵ by Kristina Sandklef and 'Russia's Energy Policy'⁶ and 'Nord Stream, Sweden and Baltic Sea Security'⁷ by Robert Larsson. 'USA:s energisituation och amerikansk energipolitik'⁸ by Hans von Knorring and Robert Larsson is another example. The author would like to thank Kristina Zetterlund and other colleagues in addition to Michael Fredholm for valuable comments on the manuscript.

Robert L. Larsson
Stockholm, October 2007

¹ A detailed list of energy-related reports by FOI can be found at the end of this report.

² Kiesow, Ingolf (2007), *India's Quest for Energy Security*, Stockholm: Swedish Defence Research Agency (FOI), February 2007, FOI Memo 2003.

³ Kiesow, Ingolf (2004), *China's Quest for Energy: Impact upon Foreign and Security Policy*, Stockholm: The Swedish Defence Research Agency (FOI), FOI--1371--SE.

⁴ Kiesow, Ingolf (2003), *Energy in Asia: an Outline of Some Strategic Energy Issues in Asia*, Stockholm: Swedish Defence Research Agency (FOI), FOI-R--0739--SE.

⁵ Sandklef, Kristina (2004), *Energy in China: Coping with Increased Demand*, Stockholm: The Swedish Defence Research Agency (FOI), FOI-R--1435--SE.

⁶ Larsson, Robert L. (2006a), *Russia's Energy Policy: Security Dimensions and Russia's Reliability as an Energy Supplier*, Stockholm: Swedish Defence Research Agency (FOI), Scientific Report FOI-R--1934--SE.

⁷ Larsson, Robert L. (2007), *Nord Stream, Sweden and Baltic Sea Security*, Stockholm: Swedish Defence Research Agency (FOI), March 2007, FOI-R--2251-SE.

⁸ von Knorring, Hans and Larsson, Robert L. (Red.) (2007), *USA:s energisituation and amerikansk energipolitik*, Stockholm: Totalförsvarets forskningsinstitut (FOI), Augusti 2007, FOI-R-2308-SE.

Contents

MAIN CONCLUSIONS	9
1 INTRODUCTION.....	14
AIM AND OBJECTIVE	14
SCOPE OF INQUIRY	15
OUTLINE OF REPORT	15
2 INTERNAL CHALLENGES FOR THE EU.....	17
THE EU’S ENERGY NEEDS AND SOME OF ITS CHALLENGES	17
BRINGING TOGETHER THE EU’S ENERGY AND FOREIGN POLICIES	20
MULTILATERALISM AND CONSEQUENCES OF THE EU’S GEOPOLITICAL POSTURE	24
MARKET FAILURES AND LIBERALISATION	26
3 EXTERNAL CHALLENGES FOR THE EU.....	29
PRODUCERS, GEOLOGY AND DEPLETION	29
NATIONALISATION TRENDS AND POLITICAL RISKS IN PRODUCER STATES.....	33
COERCIVE PRICE POLITICS AND PRICE VOLATILITY.....	35
THE SO-CALLED GAS CARTEL AND THE PROPOSED ‘GAS-NATO’	37
OBSESSION WITH DIVERSIFICATION	39
SUPPLY ROUTES ON THE AGENDA.....	40
RISKS OF SUPPLY INTERRUPTIONS	45
4 GEOPOLITICAL STRUGGLE AND THE WIDER PICTURE.....	48
COMPETITION FOR GLOBAL RESOURCES.....	48
DIFFERENT APPROACHES – DOUBLE TROUBLE	54
5 SUMMARY AND CONCLUSIONS.....	57
APPENDIX 1: EUROPEAN ENERGY IN THE REAR-VIEW MIRROR.....	63
NATURAL GAS	63
CRUDE OIL.....	66
ELECTRICITY, RENEWABLES AND OTHER ENERGY SOURCES.....	69
APPENDIX 2: ACRONYMS	70
APPENDIX 3: GLOSSARY.....	71
GEOGRAPHY	71
PIPELINES.....	71
ENERGY TERMS	71
REFERENCES.....	72

Figures

Figure 1: Oil pipelines from the FSU to Europe.....	32
Figure 2: Proposed pipelines for bringing gas from the FSU to Europe.....	41
Figure 3: The BTC Pipeline and the Baku-Supsa	40
Figure 4: Route of the Planned Nord Stream Pipeline.	43
Figure 5: Gas Pipelines from the FSU to Europe.....	44
Figure 6: EU production, imports and consumption of natural gas 1980-2004	63
Figure 7: Imports of natural gas by selected European countries 1980 and 2004	64
Figure 8: European production, imports and domestic supply of crude oil 1980-2004	67
Figure 9: Imports of crude oil by selected European countries 1980 and 2004.....	68
Figure 10: European production, imports and final consumption of electricity 1980-2004	69

Tables

Table 1: Gas suppliers to the EU(25).....	64
Table 2: European gas dependence on Russian gas supplies 2003.....	65
Table 3: Imports of crude oil (EU15) (in million tonnes)	68

Main Conclusions

- *Europe's energy predicaments will remain.* Threats to supplies will remain, energy will become more expensive, reductions in emissions will only have a marginal global impact and the EU will increase its already high dependency on both fossil fuels and foreign imports (of oil and gas) in the short- to medium-term perspective. Unless real efforts for consumption reductions are made, increase of demands will be rapid. The EU will also find it difficult to decrease emissions of greenhouse gases while simultaneously phasing out nuclear power. Actions such as replacing coal with gas have positive short-term effects on emissions and look politically attractive, but they are counter-productive in the long-term perspective as they entrench usage of fossil fuels.
- *Europe's energy predicament limits its political power.* By being dependent and confused over its energy policy, the political power of the EU is infringed. The power of its foreign and security policy is weakened since it lacks an energy component. Without a common and coherent energy strategy, it will be difficult for the EU to face global competition.
- *Europe's first priority should be to take care of its domestic problems.* The EU's internal challenges, which are connected to such things as market liberalisation and ownership unbundling, are not only serious *per se*, but they are also pivotally important when their asymmetries, loopholes and import dependencies are exploited by foreign actors. This is currently happening. Thus, if the EU wants to enhance energy security for its members, it should start at home by hedging against external exploitation. The third legislative package is a good start, but will hardly be enough. However, doing this means that EU must depart from its free-market principles.
- *Europe wrongly focuses on increasing supplies rather than decreasing demand.* Europe is overly focused on increasing supplies, partially by diversification, rather than decreasing demand, increasing efficiency and developing alternative energy sources. While natural disasters, accidents and depletion are the greatest threats to the bulk of supplies to individual states, politically underpinned energy policy and cuts in supplies, even on a minor scale, have large repercussions and affect the security policy of the whole union. Decreasing demand, diversification of fuel and reduced dependency are the only feasible options to tackle this problem.

- *Europe's diversification of supplies is ineffective from a security policy point of view.* Import diversification for the EU is largely a chimera. Russia is seen as the replacement for volatile OPEC energy, while OPEC energy is a replacement for politically affected Russian energy supplies. Creating new pipeline routes from one producer (e.g. the Russian projects Nord Stream, South Stream and Blue Stream) only solves safety problems, not political security problems. Diversification of producers is also pointless if imports from several producers are routed via a single supplier. An aggravating factor is that Russia is increasing its influence over third parties, such as energy producers in North Africa and Central Asia. This undermines the advantages of any diversification that does take place.
- *Europe is bound to rely on Russia.* Despite the problems of reliance on Russia for oil and gas transport from Central Asia, the EU should be aware of the fact that Russia's loss in Central Asia is Europe's loss. If China and India gain power and influence over Central Asian energy at Russia's expense, Europe will be negatively affected. The only way out of this predicament is to route Central Asian energy via the Caspian Sea or via Iran. A Trans-Caspian gas pipeline is of key importance in this regard.
- *Europe pays special attention to Russia.* The EU is criticising Russia to a greater extent than other producers, but this is only because the EU expects more of Russia than of other exporters. As a member of the G8, the Council of Europe and possibly the WTO, Russia is expected to behave as other members do. It is however clear that Russia does not appreciate this distinction.
- *Russia pays special attention to Europe.* Russia prioritises the European markets, especially its largest members. However, when gas and oil deficits arise in Russia, especially in combination with increased domestic demand, the domestic Russian market will be prioritised and exports to Europe will be cut back. This is an overwhelming risk already in the upcoming winter (2007-08). Furthermore, Russia is interested in good relations with the EU as whole, but not necessarily with all individual members.
- *Europe is facing what can be called an energy dilemma.* As a response to European criticism of coercive Russian energy policy, Russian has threatened to reroute its supplies eastwards, towards China and Japan. This is partly an empty threat, as Russia lacks the transport capacity to do so in the short-term perspective. However, it might have an impact on the margin and in the medium-term perspective, and it is certainly a declaration of a policy posture where the producer wants Europe to adopt a policy of appeasement. The EU is thus facing a situation where it must either stand up for its principles and

members and consequently face the risk of having its supplies cut back, or it can hold back in its criticism and let Russia set the rules. This is the energy dilemma.

- *Europe's agenda is subjugated to national agendas, which impedes development of a coherent energy policy.* A lack of consensus between members and between EU institutions manifests itself as a lack of focus and momentum. An increasing bilateralism within the energy sector exacerbates the problem. Forming an energy policy requires members and institutions to look at what is best for the union as a whole, while at the same time national security, by definition, is national in character. No state puts common European security as its overarching national security. If the EU wants to move towards a common posture, a fundamental challenge in shifting the point of gravity towards common security lies ahead.
- *Europe's indecisiveness weakens its power to put pressure on producers.* The EU cannot decide whether it should see producers, i.e. Russia and OPEC, as problems or solutions to existing problems. It is therefore problematic for the EU to advocate increased pressure on producers as a response to perceived threats and problems. One result is that the EU's potential as a consumer lobby remains weak.
- *Europe's rogue members undermine energy solidarity.* While it is understandable that individual companies engage in deals that go against the priorities of their governments, some EU members have also 'sold out' European principles for their own benefits. States such as Germany and Hungary, but also Italy and Bulgaria, have provided bridgeheads to energy infrastructure projects with strong strategic underpinnings. The result is that Europe's energy dependency has become deep-rooted and the union has become technically attached to a producer that has systematically bullied EU members and its own neighbours. However, the states listed above should not expect a privileged position vis-à-vis exporters, as there are indications that they are being exploited.
- *Europe's policy responses in terms of solidarity are still not credible.* The EU needs to stand up for its members, develop and apply solidarity clauses on energy matters, and prevent single members from entering long-term contracts that other members consider problematic if its energy posture is to be a successful instrument in its foreign policy. However, creation of a so-called gas-NATO, which has been suggested by Poland, would be counterproductive and awarding NATO proper the responsibility of becoming a consumer watchdog

would create a dangerous precedent. Europe would not appreciate producers creating a military alliance in order to keep prices high.

- *Europe has irreconcilable energy goals.* Concerning the trade-off between security, competition and environmental sustainability, the EU tries to prioritise everything at once. Consequently, it fails in all tasks. Another example of Europe's irreconcilable ambitions is that the EU sees price volatility as a problem. The EU cannot call for mechanisms to reduce volatility, such as long-term contract regimes dictated by producers, and at the same time increase its reliance on market regulators. However, while the EU fails to prioritise between security, competition and sustainability, individual member states do not.
- *Europe is not as 'normal' as one may think.* While the EU has the worthy ambition of formulating international rules concerning energy trade, Europe's adherence to market mechanisms on the global energy scene is by and large an anomaly. All other major powers act on the basis of geopolitics. While the EU pushes for domestic liberalisation, producers such as Russia and Venezuela are nationalising their energy sectors and the Middle Eastern countries have already done so. Major consumers such as the US and China act coercively in order to secure energy demands. Europe is hence a role model for liberalisation at the same time as it is lagging behind the international competition.
- *Europe's emerging geopolitical posture stands in contrast to its free-market approach.* The EU is slowly moving towards a geopolitically-based energy posture, but this undermines its own dogma of interdependence as a source of stability and security to some extent. This course is a one-way street and the EU will lose credibility if it advocates interdependence and simultaneously acts in opposition to it. It also means that the EU must give up its existing ambitions of convincing other producers and consumers to play by the same rules as the EU does. The EU must hence be prepared to make sacrifices if it wants to act on the global arena according the same rules as other great powers.
- *Europe might face a gas cartel.* While OPEC's power has decreased, a Russian-led gas cartel is emerging. Further development is necessary for it to gain some clout – today it is a paper tiger. When prices are high, there are no real incentives for price collaboration, and advanced forms of cooperation will take time to develop. However, the gas cartel could decide on export routes and divide the market between its members, thus maximising prices in the long-term perspective. This gas cartel is highly politicised and should be interpreted as a step towards increasing producer power over consumers.

- *Europe will not fight resource wars.* Threats of looming resource wars are largely exaggerated – competition is not the same as conflict. Energy as a power instrument is likely to increase in importance when depletion materialises, prices increase and competition intensifies. There are risks that Europe will face other forms of cartels and embargos in the short- to medium-term perspective, and managing competition outside the EU's market framework will thus be a key challenge for the future.

1 Introduction

Europe is facing a future of increasing energy demands, domestic depletion, high prices and other energy-political challenges. By being wedged between the energy producers around the North Sea, in North Africa, in the Middle East and in the former Soviet Union, Europe has to rely on these regions in order to secure its future energy needs. Proximity and mutual interests of consumers and producers provide a basis for trade and cooperation, but can also be fertile soil for competition and political friction. Current problems relating to climate change, infrastructure resilience, the coercive energy policy of producers and the EU's internal market failures have put stress on the EU's emerging energy policy and inspired the union to address its challenges with greater enthusiasm than before.

However, despite some serious efforts from Brussels to tackle these challenges, a real common and coherent energy strategy for the European Union is still in the making. Every single EU member has instead opted for bilateral policies towards energy exporters. A substantial import dependency on oil and gas overshadows much of the EU's energy effort. New supply routes have largely been prioritised, but large-scale import diversification is a daunting task and there has often been greater emphasis on increased supply rather than on energy conservation, something which stands in contrast to the EU's ambitious emissions goals.

In short, Europe is facing a series of internal and external challenges in terms of tackling its energy dependency, some of which call for strategic choices of a magnitude to which the EU is not accustomed. Quite a few of these have seemingly easy answers, such as opting for autarchy, but they might also carry negative side effects. The rationale for this study is that many aspects of Europe's energy policy are not only double-sided, but also closely related to security policy.

Aim and Objective

The aim of this report is to identify, analyse and assess the political side of Europe's energy predicament and import dependency. This is done by addressing some of Europe's energy challenges. The objective is to answer the questions: What are the key factors in Europe's energy security? and What are their consequences?

Scope of Inquiry

This study is an empirically-based descriptive analysis made from a European security political point of view against the backdrop of Europe's increasing energy dependency.⁹ The report tries to answer its research questions by focusing on the politically grounded energy challenges, rather than the geological or physical challenges, which means that energy data and energy market reform are only briefly covered.

Current and future challenges in the short- and medium-term perspective are assessed here, rather than possible solutions. Issues that have been widely debated in Europe during 2006 and 2007, for example the risk of a gas cartel and global competition, are emphasised. Russia enjoys a special position in this context. Russia's energy policy not only made headlines during 2006 and 2007 for political reasons, but Russia also advanced its position to become the premier supplier of natural gas to the EU. Currently about 50 per cent of the EU's gas comes from Russia. Russia is by far the most important energy supplier of gas, but also to some extent of oil, to Europe. It is therefore natural that of the external suppliers in this report, Russia is awarded most attention.

Statistics and other data are primarily taken from the EU or the 2006 International Energy Agency (IEA) databases on 'Energy statistics' and 'Energy balances' for OECD countries. Other sources utilised include EU documents and reports, media articles, and analyses by energy and security experts such as Andrew Monaghan, Jonathan Stern, Michael Fredholm, Janusz Bugajski and Vladimir Socor.¹⁰

Outline of Report

This report is divided into five sections. After this Introduction, Section 2 outlines the challenges that stem from within Europe, such as future energy needs and the internal market problems. Section 2 should be read in conjunction with Appendix 1, which provides a picture of the European energy situation in terms of production, consumption, imports and exports of oil, gas, coal and to some extent also nuclear power and renewable fuel sources from 1980 to 2004.¹¹ Section 3 assesses some of the

⁹ This report uses the term 'Europe' for both the EU and for the wider Europe, but usage of the term EU is limited to the organisation and its members.

¹⁰ A list of acronyms and other terms can be found in the appendices.

¹¹ As the statistics and data of this report cover the time period from 1980 to the future, the members of the EU have and will change over time. Due to this reason, the so-called EU19 is used in historical statistics, such as in Appendix 1. The EU19 comprises Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Czech Republic, Hungary, Poland, the Slovak Republic and the United Kingdom. Please note that in the interests of having comparable data, all these countries are included for all years despite different entry dates into

most important external challenges to European supplies, such as cartels, coercive price policies, depletion and unreliable suppliers. Section 4 covers some challenging features of global competition and the geopolitical struggle for energy, a struggle where China, the US and Russia are important players. Finally, a discussion and a few conclusions are presented in Section 5.

the European Union. When other data are used, the term EU includes the members at that given point. For the sake of facilitating writing, the terms EU and Europe are used in a broad way.

2 Internal Challenges for the EU

This section shows that Europe's energy needs are increasing and that fossil fuels will remain the primary fuel source – despite a strong increase in renewables. It is problematic to find a perfect renewable energy solution, since some solutions generate new problems. This section further underscores some aspects of the merger of the EU's energy and foreign policies and concludes that the internal market is beleaguered with phenomena that need to be addressed if external challenges are to be tackled efficiently. Basic statistics on Europe's energy situation today (and in the rear-view mirror) can be found in Appendix 1, which should be read in conjunction with this section.

The EU's Energy Needs and Some of its Challenges

Europe's energy situation is unsustainable, non-competitive and increasingly dependent on imports, resulting in several challenges concerning climate change, the economy and security of supplies. A few of EU's energy characteristics and prospects for the future are illustrated below.

According to the EU's predictions in 1999, gas would be the fastest growing primary fuel during coming decades in terms of shares, since “[i]ts share in primary energy consumption is projected to increase from 20% in 1995 to 26% in 2010”, under a so-called baseline scenario.¹² Only a minor increase beyond the year 2010 was expected. In contrast, the share of oil in primary consumption “is projected to be relatively stable over the period to 2020 and its annual growth rate is projected to decelerate from 1% in the period to 2010 to 0.1% during 2010-20.”¹³

In 2006, however, the EU predicted that renewables, especially wind power, would be the fastest growing energy source up until 2030 (by 74 per cent) in terms of volume. Since the renewables share of the total energy balance is rather small, only six per cent in 2000, this sector is expected to reach a level of only nine per cent in 2030.¹⁴ Natural gas is predicted to be the second fastest growing fuel. It is intended to satisfy the EU's demand for 32 per cent of total energy consumption in 2030. Oil, in contrast, will only increase by 3 per cent, but will still have a 35 per cent share of total

¹² N.B. both the EU and the IEA use multiple scenarios when making predictions and forecasts. A reader is advised to look at their alternative scenarios and the assumptions before drawing hefty conclusions. A base-line scenario is simply a business-as-usual scenario. See further: EU DG Tren (1999a), *European Union Energy Outlook to 2020*, Brussels: EU DG Tren, and IEA (2006), *World Energy Outlook 2006*, Paris: International Energy Agency (IEA).

¹³ EU DG Tren (1999b), *European Union Energy Outlook to 2020: Executive Summary*, Brussels: EU DG Tren.

¹⁴ EU DG Tren (2003), *European Energy and Transport - trends to 2030: Executive Summary*, Brussels: EU DG Tren.

consumption in 2030. Since nuclear fuel is on the decrease, solid fuels are expected to increase in importance as they will partly replace the phasing out of nuclear power.¹⁵ The EU has thus changed its forecasts during the last couple of years, but the big picture is clear. More energy is asked for.

According to the EU, energy is responsible for 80 per cent of the emissions of *greenhouse gases* (GHG) within the union and current trends show that these emissions will increase by five per cent to the year 2030. The increase in global emissions is projected to 55 per cent.¹⁶ The EU is thus doing well, relatively speaking, but not well enough to curb the increasing emissions of either the union or globally. Even if the EU reduces its emissions, it will only have a marginal impact on the level of global emissions. If the EU wants global impact, it should also act outside the union.

Concerning the economic and competition side of the energy equation, the EU Commission underscored that energy will become more expensive in the future.¹⁷ One of the EU's examples shows that if a barrel of oil were to be priced at USD100 in 2030, it would mean that the bill for imported energy would be raised by EUR170 billion, or EUR350 per European citizen. Handling this problem requires technological innovations. Finding new solutions driven by technological innovation would also create new jobs and bring benefits to Europe, according to the EU.¹⁸ Whether this is political optimism or not remains to be seen. When the coal industry gradually modernised in the US, the output of coal doubled, but the workforce was cut from 700,000 to 80,000.¹⁹ While technological modernisation programmes are advantageous for creating new jobs, they may also have serious drawbacks and create redundancies. Energy innovations are required, but if the energy policy is co-opted for labour policy reasons, it runs the risk of backfiring.

The import dependency of Europe to the year 2030 is expected to rise from 50 to 84 per cent concerning natural gas and from 82 to 93 per cent concerning crude oil.²⁰ Furthermore, about EUR900 billion is expected to be needed for investments in electricity during the coming 25 years.²¹

¹⁵ Ibid.

¹⁶ EU Kommissionen (2007), *En energipolitik för Europa: Meddelande från Kommissionen till Europeiska rådet och Europaparlament* Bryssel: 10 January 2007, KOM 2007:12, p. 3.

¹⁷ Ibid., p. 4.

¹⁸ Ibid., p. 4.

¹⁹ von Knorring, Hans and Larsson, Robert L. (Red.) (2007), *USA:s energisituation and amerikansk energipolitik*, Stockholm: Totalförsvarets forskningsinstitut (FOI), Augusti 2007, FOI-R-2308-SE.

²⁰ EU Kommissionen (2007), *En energipolitik för Europa: Meddelande från Kommissionen till Europeiska rådet och Europaparlament* Bryssel: 10 January 2007, KOM 2007:12, p. 3.

²¹ Ibid., p. 4.

In addition, mechanisms for handling solidarity among EU members are not in place,²² something that adds to the problems of supply security for some members, especially those that import energy via pipelines. One solution to this predicament is imports of so-called *liquefied natural gas* (LNG). The main advantage of LNG is that trade is not bound to pipelines. Instead, special terminals freeze the gas, load it on tankers, ship it and re-gasify it at the end destination. Thanks to LNG, importers can buy gas either on a spot market or via long-term contracts. An importer is thus able to choose gas exporter to a greater extent than when relying on pipelines.

LNG is thus high on the agenda in Europe. The technology has been present for decades, but it is not until the last couple of years that it has become cost-effective and readily available for large-scale projects. Today, 11 per cent of Europe's imports of gas are imported in the form of LNG, most notably from Algeria and Nigeria. The drawback is that LNG technology is sensitive to physical threats and several bottlenecks remain. For example, LNG is extremely popular as a way to increase the security of supplies for importers, but the exporters have not kept pace and there is a surplus capacity of re-gasification terminals that are standing idle. Investment costs are substantial and LNG transport over short distances is therefore not cost-effective. Furthermore, the US is predicted to increase its usage of Middle Eastern and African LNG in a ten-year perspective. The US may well prove to be a strong competitor to the EU.²³ Usage of LNG in coastal states, especially the UK, will by all means increase, but it is not a full-spectrum remedy to all import problems, although it might ease the strain on pipeline diplomacy.

Another potential option is coal. Coal has the features of being cheap and abundant, but at the same time, it is one of the dirtiest fossil fuels available, with large emissions of GHG. Accordingly, states with limited economic means, domestic coal reserves and coal power plants will likely pay little attention to EU emission schemes if faced with a threat stemming from exporters of oil or gas. One challenge is therefore to convince coal users to abstain from using it, at least in the traditional way. Technology is now being developed for so-called *carbon capture and storage* (CCS), which involves carbon dioxide from power plants being stored underground, thus keeping emissions of GHGs into the atmosphere to a minimum. However, this technology is still too expensive and a few problems remain to be solved. The flipside of the coin is that while increased usage of natural gas is one of the best options to reduce usage of coal, gas is still a fossil fuel and turning from coal to gas decreases the incentives to turn to renewables. A short-term environmental gain can thus in a long-term perspective be counter-productive.

²² Ibid., p. 4.

²³ Stern, Jonathan (2006), *The New Security Environment for European Gas: Worsening Geopolitics and Increasing Global Competition for LNG*, Oxford: Oxford Institute for Energy Studies, October 2006, NG15, p. 21.

One third of Europe's electricity comes from nuclear power and it will make up 15 per cent of its total energy balance in 2020. This makes it relatively cheap and clean in terms of GHG emissions.²⁴ Many of the old power plants in Europe are being phased out, but advocates of nuclear power nonetheless are now having a positive response not seen since before the Three Mile Island and Chernobyl incidents. It is true that some states, such as Sweden, have had moratoriums on nuclear power but several other states, such as France and the UK, have increased their efforts within the nuclear sector. Poland and Lithuania are opting for nuclear power, one argument being that they want to reduce their reliance on Russian gas. Their solution is to construct a new nuclear power plant in order to replace the ageing Ignalina plant in Lithuania. Germany had similar ideas but has decided not to go forward with nuclear energy. One key challenge in this context, which has been acknowledged by the EU, is that any ambition to decrease usage of nuclear power, which is sought-after for safety concerns, would have a negative effect on the ambitions to decrease emissions of GHG.²⁵ Nuclear power would have to be replaced, at least in the short-term perspective, by solid fuels, gas or coal.

Accordingly, the EU sees renewables as a necessary option for the future. However, there are also challenges when opting for renewables. Increasing renewables to a 20 per cent share of the energy balance, which is a highly ambitious target, would cost around EUR18 billion annually, or in other words, another six per cent extra on the EU's total expected bill for energy for the year 2020 (at an oil price of USD48/barrel).²⁶ Judging from this it can be said that most trends are double-sided. There is insight into key problems, but Brussels is faced with the tough challenge of meeting the increasing demands by means other than technological innovations. Managing the increasing import dependency is thus an issue that has economic, political and security dimensions. The EU consequently opts for merging its energy and foreign policy, a challenge that requires more than a good spirit.

Bringing together the EU's Energy and Foreign Policies²⁷

As a result of the EU's analysis of its predicament, several Green Papers on energy have been launched, for example in 2000 and 2006. The paper from 2006 points to the three legs of the EU energy policy: security of supplies, competitiveness and

²⁴ EU Kommissionen (2007), *En energipolitik för Europa: Meddelande från Kommissionen till Europeiska rådet och Europaparlament* Bryssel: 10 January 2007, KOM 2007:12, p. 16.

²⁵ Ibid., p. 16.

²⁶ Ibid., p. 16. If the oil costs USD78/barrel, it would add about EUR10.6 billion.

²⁷ Parts of this section are based on Thomas Jönsson's chapter in the FOI-report by Carlsson-Kanyama, Annika, et al. (2007), *Perspektiv på energisäkerhet*, Stockholm: Totalförsvarets forskningsinstitut (FOI), FOI-R-2250-SE.

environmental concerns.²⁸ These aspects will be returned to throughout the following assessments.

The EU's 2006 Green Paper explicitly states that the EU is to speak with one voice,²⁹ but realising this ambition has been difficult. The EU has several international energy policy priorities that cannot easily be combined. According to the EU Commission, the EU wants to:

- Reach international deals
- Strengthen energy relations with neighbours
- Fight disruptions
- Strengthen ties with Russia
- Engage in partnerships with Africa
- Increase its ties to the US
- Focus on physical safety.³⁰

If this is seen in the context of the EU's overall foreign policy, and what is said on the following pages, it implicitly reveals that the EU cannot decide whether it should see the producers of Russia and OPEC as problems, or as solutions to its problems. The EU wants to do all at once and reach goals that to some extent might be mutually exclusive. It is evident that insight into key problems exists, but the EU has not been decisive enough to prioritise among its tasks to the extent necessary to get an impact.

If the EU is at a loss, it is highly problematic to advocate increased pressure on producers as a response to perceived threats and problems. The EU's potential as a consumer lobby therefore remains weak. Lack of consensus, not only among the various members, but also among the various EU institutions such as the Parliament and the Commission,³¹ exacerbates the lack of focus and lack of momentum. The core of the problem is that the process of forming an energy policy requires the members and institutions to look at what is best for the union as a whole, while at the same time national security by definition is national in character. No state puts common European security as its own overarching national security. Hence, if the EU wants to move towards a common posture, a fundamental challenge lies ahead.

²⁸ EU Commission (2006b), *Green Paper: A European Strategy for a Sustainable, Competitive and Secure Energy*, Brussel: The EU Commission, 8 March 2006, COM (2006)105 Final. The older paper was: EU-kommissionen (2000), *Grönbok: Mot en europeisk strategi för trygg energiförsörjning*, Bryssel: Eu-kommissionen, 29 november 2000, KOM (2006)769 Slutgiltig.

²⁹ EU Commission (2006b), *Green Paper: A European Strategy for a Sustainable, Competitive and Secure Energy*, Brussel: The EU Commission, 8 March 2006, COM (2006)105 Final, p. 20.

³⁰ EU Kommissionen (2007), *En energipolitik för Europa: Meddelande från Kommissionen till Europeiska rådet och Europaparlament* Bryssel: 10 January 2007, KOM 2007:12, pp. 23-24.

³¹ Monaghan, Andrew (2007), *Russia and the Security of Europe's Energy Supplies: Security in Diversity?*, Swindon: Conflict Studies Research Centre (CSRC)/Defence Academy of the United Kingdom, January 2007, 07/01, p. 14.

The so-called third legislative package, released by the EU on 19 September 2007 is an important landmark, since it is rather explicit and tries to point out the problems discussed here with greater authority than before. Still, disunity in Europe plagues cooperation and the different agendas of EU member states make it difficult to join forces.³² The challenge is to bring together the various aspects and concerns of foreign policy, security, energy and a market economy despite the divergences in views among EU members. There have been several attempts to incorporate energy issues into some of the chapters of the treaties of the numerous intergovernmental conferences, but some EU members have been reluctant to approve the idea, most notably the largest members. Due to high energy prices and the recent focus on GHG emissions, there are indications that new efforts will be made from 2007 onwards. For the first time, the UK has joined calls for a common energy policy, an effort that could be seen in the light of strained relations between the UK and Russia during 2006 and 2007. A few initiatives deserve to be further mentioned.

The EU adopted its common security strategy in December 2003. The strategy outlines the threats against the EU and clearly states that not only will the common foreign and security policy be used to tackle these threats, but that trade and aid policies will also be used as swords and shields in this context. In terms of energy, the strategy states that the EU's import dependence is a security problem.³³ As regards security of supplies, the European Council stressed the matter when calling for a common EU policy in 2006³⁴ and announced that an action plan was to be developed in 2007. Such an action plan would be aimed at a common external energy policy by strengthening the energy security situation on the basis of a dialogue with producers and transit states and by diversifying usage of fuels in combination with the creation of mechanisms for crisis management.

The EU Commission and the General Secretary of the Council at the time, Javier Solana, also produced a document called 'An external policy to serve Europe's energy interests'.³⁵ The document concludes in three sentences that the threats towards supplies come from unstable countries and those that use energy as a means of exerting pressure. In addition, the document stresses that external actors who enter the inner European market without facing competition on the domestic market constitute a threat. These sentences identify the Middle East and Russia as problems for the EU. On its website, the EU General Directorate for Energy and Trade writes:

³² Oxford Analytica (2005), 'Disunity Hampers Common Energy Policy', *Oxford Analytica*, Published: 1 December 2005, Last accessed: 2 December 2005, Internet: <http://www.oxan.com>.

³³ Europeiska unionen (2003), *Ett säkert Europa i en bättre värld: EU:s säkerhetsstrategi* Bryssel: Europeiska unionen, 12 december 2003.

³⁴ European Council (2006), *Brussels European Council 23/24 March 2006 - Presidency Conclusions*, Brussels: European Union, 18 May 2006, 7775/1/06.

³⁵ EU Commission (2006a), *An External Policy to Serve Europe's Energy Interests*, European Union, S160/06.

The Internal Energy Market increases the interdependence of Member States in gas supply and the EU import dependence is increasing (it is expected to increase from 57% today to 84% by 2030). In many Member States, electricity generation is becoming heavily dependent on gas. Therefore, security of gas supply will continue to be paramount to the EU economy. The EU has effective energy relationships with traditional gas suppliers from inside the European Economic Area (EEA), notably Norway and outside, Russia and Algeria. Nevertheless, it remains important for the EU to promote diversity with regard to source, supplier, transport route and transport method. In addition, effective mechanisms need to be put into place to ensure solidarity between Member States in the event of an energy crisis. This is particularly important given that a number of Member States are highly or completely reliant on a single gas supplier.³⁶

This is one of the documents that balance what can be called a market-based strategy and a geopolitical strategy. According to the EU, effective world markets are important, and the EU should promote transparent, mutual and non-discriminatory trade relations. The EU also warns against a development where too many actors try to secure their supplies by bilateral means.

The importance of the geopolitical dimension must nonetheless be acknowledged according to the EU. One suggestion that has emerged in the debate is that bilateral contact with Russia and the forming of an energy treaty, which in the long-term perspective integrates EU's and Russia's energy markets, should be welcomed. Concerning the strategy towards greater energy security, most observers also agree on the importance of more investments in infrastructure, diversification of sources and means of transport, while a higher level of scepticism is seen concerning increased domestic production and decreased consumption. However, there is, as indicated, a philosophical difference in approach, i.e. between a market and political approach. The market-based approach, which includes issues such as insurances and financial instruments, has been advocated by the Centre for European Policy Studies (CEPS).³⁷ The opposing views are those that state that the EU's energy supplies need to be secured by political means. As long as the US, China and Russia act geopolitically, so should the EU. It cannot be taken for granted, according to this perspective, that the energy companies will act in the interest of their respective nation.³⁸ This point will be returned to in Section 4.

³⁶ EU DG Tren (2007), 'Security of Gas Supply', *EU DG Tren*, Published: 5 February 2007, Last accessed: 8 May 2007, Internet: http://ec.europa.eu/energy/gas/sos/index_en.htm.

³⁷ Egenhofer, Christian and Legge, Thomas (2001), *Security of Energy Supply: A Question for Policy or the Markets?*, Center for European Policy Studies, 1 November 2001.

³⁸ Correljé and Linde, van der (2006), 'Energy Supply Security and Geopolitics: A European Perspective', *Energy Policy*, No. 34.

When the IEA and the EU promote measures for increasing energy security, they often speak about supplies, not about demand. Measures for improving the internal energy market and boosting energy efficiency are only slowly gaining momentum. However, when the interest in climate change skyrocketed in 2006, after an UN-sponsored report,³⁹ public and political awareness and willingness to react to the problem grew. Energy efficiency programmes were formed.

As is evident from one of Javier Solana's speeches at the EU's Energy Conference in 2006, the balance of the EU seems to have shifted in favour of the geopolitical strategy. Solana concluded his speech by saying that the energy demand could put constraints on the EU's ability to reach other goals, such as conflict management, human rights and good governance. Some actors will hold their energy goals higher than other goals. When he outlined his suggestions, he failed to mention a well-functioning energy market but instead focused on diversification, energy saving, greater capacity for intra-union energy transfer, mechanisms for crisis management, physical protection of infrastructure, nuclear power, and the creation of a relationship with Russia that is rewarding for the EU.⁴⁰ This indicates a policy based on pragmatism rather than on principles.

The EU's energy posture will have an impact on *the Common Foreign and Security Policy* (CFSP), but also internally. An increasing engagement in energy affairs by the CFSP structures could lead to turf wars, a problem that has been seen within the EU when it comes to the role of armed forces in disaster management. This could be a reason why the Commission is trying to connect the external energy policy to its own instruments and fields of cooperation.

In the long-term perspective, a link between CFSP and energy could develop from a discussion on whether the EU should resort to military means to secure energy supplies, for example by protecting shipments of oil. This could be seen, at least by sceptics, as a step towards militarisation of energy issues and a new effort to form a military alliance separate from NATO. However, there has been an increased awareness of the need to create multilateral solutions to the union's challenges.

Multilateralism and Consequences of the EU's Geopolitical Posture

One multilateral way of managing international energy relations is by the *Energy Charter Treaty* (ECT), the only legally binding document for international energy

³⁹ This usually called the Stern Report, but it should not be confused with Jonathan Stern, who is frequently cited in this report.

⁴⁰ Solana, Javier (2006), *Address by Javier Solana EU High Representative for the Common Foreign and Security Policy at the energy conference "Towards an EU External Energy Policy"*, Brussels: The Spokesperson of the Secretary General, High Representative for CFSP, 20 November 2006, S324/06.

trade.⁴¹ The EU holds the ECT in high esteem and from its perspective, it is problematic that the ECT and its co-called Transit Protocol have not been ratified by Russia,⁴² although they have been ratified by other CIS states. As Russia is such an important supplier, its adherence to the ECT is of the greatest importance if international trade is to move towards a regulated form of cooperation. Analyst and solicitor Alan Riley has nonetheless noted that Russia is already bound by the provisions of the ECT as, under article 45:2 of the charter, it is bound to follow the charter regardless of it being ratified, since at the time of signing the ECT, Russia did not opt out from this clause (as Norway did). Politically speaking, the ECT is a key document to which Russia needs to adhere if it wants to convince Europe that it is honest in its intentions of becoming a reliable supplier acting on market grounds. The reason for Russia's stand is that Russia sees the ECT as a way of undermining its independence and weakening its competitive and strategic advantages. According to the Russian view, adhering to the ECT, and especially the transit protocol, would result in reduced power over its pipelines.

From what has been said, it is possible to conclude that the EU seems to be gradually moving away from the interdependence standpoint, despite EU spokespersons frequently mentioning interdependence. This shift in policy has consequences. Acknowledging geopolitical realities as framing factors for energy trade would be a step towards a realistic posture of the EU. This change in posture could have greater impact as this is the energy policy posture held by all the major powers outside the EU. While it is true that there is a high degree of interdependence between the EU and energy producers, there are such strong asymmetries that unless the numerous statements on 'interdependence' are clarified, they will lead the observer to draw the wrong conclusions. Interdependence exists, but only within certain fields, concerning certain states and it is almost always asymmetrical, which means that its power as a security guarantor is weakened. It would be a breakthrough if the EU stressed the asymmetrical nature of the interdependence that exists. Interdependence is occasionally connected to liberalisation, but does not have to be. One cannot expect the EU to advance both of these concepts at once.

However, if the EU moves towards a geopolitically guided posture, it would also mean that its adherence to interdependence as a source of stability and security in Europe, evident to all since the creation of the Coal and Steel Union in 1952 and of Euratom in 1957 – the foundations of the EU, will be weakened. This course is a one-way street and the EU will lose credibility if it advocates interdependence and then acts in opposition to it. It would also mean the EU slowly giving up its ambitions to

⁴¹ Energy Charter Secretariat (2004), *The Energy Charter Treaty and Related Documents*, Energy Charter Secretariat.

⁴² The main reason has been Gazprom's position and ability to create opposition in the Duma, especially up until 2001. Stern, Jonathan P. (2005), *The Future of Russian Gas and Gazprom*, (Oxford: The Oxford University Press/The Oxford Institute for Energy Studies), p. 137.

convince other producers and consumers to play by the same rules as the EU. Pushing for the ECT and acting on a geopolitical agenda is not politically reconcilable. Forming a coherent common energy strategy of the EU with this in mind is thus a tricky challenge. An impending factor is that the problems of the internal market often overshadow the political ambitions.

Market Failures and Liberalisation

The EU's current goals for security of supply, sustainability and competition have not been achieved according to various EU documents.⁴³ Other failures are the creation of interconnections between the various national energy grids, which are stressed by the EU, creation of strategic reserves and assisting those that are dependent on one single supplier.⁴⁴ Liberalisation and enforced regulation from the EU have evolved hand-in-hand on the European energy markets in the last couple of years, but liberalisation in particular is seen as a central remedy to most problems, including import dependency.

Accordingly, on 1 July 2007, the EU's internal electricity market was declared liberalised. Before the external challenges are scrutinised in the following section, it is vital to stress that a substantial explanation for the EU's energy predicament is found within the union. However, when external actors take advantage of the EU's internal market failures, the magnitude of the external challenges are increased. Thus, abolishing or limiting the internal shortcomings, such as legal loopholes, would reduce the impact stemming from foreign exploitation. A few of these challenges can be elaborated on.

Vertically-integrated companies (VICs), companies that have assets within the whole upstream-downstream line, have become dominant on the European energy arena. The 'national champions', for example EON, Gaz de France and Gazprom are examples of powerful VICs.⁴⁵ One advantage of a national champion is the clout it has by having close links to the state. However, when a company controls everything from exploration and extraction to transmission and whole sales, competition on the market is infringed and a risk of discriminatory practice emerges, at least according to the EU. Two main solutions exist, one having independent owners of assets, and

⁴³ For example: EU Kommissionen (2006), *Prospects for the Internal gas and Electricity Market: Meddelande från Kommissionen till Europaparlamentet och Eurorpeiska rådet*, Bryssel: EU Kommissionen, KOM 2006:841.

⁴⁴ EU Kommissionen (2007), *En energipolitik för Europa: Meddelande från Kommissionen till Europeiska rådet och Europaparlament* Bryssel: 10 January 2007, KOM 2007:12, pp. 10-11.

⁴⁵ Large states such as Russia have several VIC:s.

one where there is a division of ownership. The latter suggestion is embraced by the EU.⁴⁶ The third legislative package addresses the problem in great length.

The process of ownership unbundling is highly tedious and complex, which puts constraints on the development towards a liberalised energy market. Lack of transparency and cross-ownership makes unbundling even more difficult. Increasing transparency would also be a solution to price manipulation.⁴⁷ France and Germany have been some of the fiercest opponents of liberalisation, but so have the new and small EU members. According to the EU, the new members fail to see the link between liberalisation and increased energy security. The new members occasionally equate nationalism with security, even if the alternative to integration is isolation.⁴⁸

The EU's General Directorate for Competition (DG COMP) has initiated the process of unbundling, but much remains to be done. The process is made difficult by European companies and countries that have vested interests in Russian energy. For example, German Ruhrgas owns seven per cent of Gazprom, while companies such as ENI and Enel of Italy have gained limited access to Russian gas fields in return for ceding their own assets to Gazprom.⁴⁹ The results are consumers being overcharged for their gas⁵⁰ and Germany and Italy being unwilling to assist Brussels and DG COMP to fight existing internal problems. Hence, the EU is striving for solutions that are not supported by its members.

Isolationism and nationalism are by and large counter-productive policies in Europe today, and two points should be stressed. When Russia is hedging its strategic sectors and takes advantage of the openness in Europe, it is understandable that states such as Poland flirt with the idea of protecting their own strategic sectors, even if this goes against the efforts of Brussels. Secondly, when the new EU members, for example the Czech Republic, consider breaking up their national champions they see two distinct problems. First and foremost, unless the large powers of Europe, for example Germany and France, split their national champions first, they are likely to take over the energy companies of smaller states, such as Czech Republic. The second step is that even if Brussels finds a way to handle this problem, there is still the even greater risk of European small- and medium-sized companies being taken over by external actors, for example Gazprom. Thus – liberalisation has not solved any of these problems, but rather created new ones.

⁴⁶ EU Kommissionen (2007), *En energipolitik för Europa: Meddelande från Kommissionen till Europeiska rådet och Europaparlament* Bryssel: 10 January 2007, KOM 2007:12, p. 7.

⁴⁷ *Ibid.*, p. 9.

⁴⁸ Economist (2007), 'A Bear at the Throat', *The Economist*, 14 April 2007.

⁴⁹ *Ibid.*

⁵⁰ *Ibid.*

Again, Russia is one of the actors exploiting the European process of liberalisation for its own profit and power. For example, Russia wants to enter the EU market and get a controlling stake before liberalisation materialises or EU regulations limit foreign intervention. One way of doing this is by creating and extending long-term contracts and dashing for access to down-stream markets.⁵¹ Whether things will change when the degree of liberalisation has increased is difficult to foresee. At the same time as liberalisation gives Russia new possibilities, liberalisation is also a way of achieving energy security by cutting profit margins in gas distribution and thus reducing “Gazprom’s appetite for European domestic assets”, as the Economist put it.⁵²

Parallel to ownership unbundling is the challenge of asymmetrical access to markets. Upstream markets in the Middle East have been closed for decades, but in Russia and the Caspian Region, European companies have been able to get a foothold. However, during Putin’s second presidential term, foreign energy companies have been denied access to a much greater extent than during the previous decade. Existing rules, contracts and practices are continuously being revised to Russia’s advantage. When Gazprom expands its activities on the European downstream markets by taking advantage of the openness of the market, the challenge is how the EU should deal with a situation where European actors are increasingly denied access to Russian upstream markets, while at the same time Russian actors are gaining access to downstream markets. Paradoxically, the strongest response to this challenge would be to form a large and strong European energy monopoly, a solution that few states would accept and a solution that contradicts the liberalisation efforts of the EU.

⁵¹ Paszyc, Ewa (2006), *Gazprom in Europe: Faster Expansion in 2006*, Warsaw: Centre for Eastern Studies (OSW), February 2007, p. 1.

⁵² Economist (2007), 'A Bear at the Throat', *The Economist*, 14 April 2007.

3 External Challenges for the EU

Besides the numerous challenges found on the EU domestic market, there are also external aspects that Europe needs to grasp and embark upon if it wants to be able to secure its energy needs in times when competition has increased. These external challenges stem from geological depletion, producers' market management, political risks and coercive price politics, cartels, pipeline politics and supply interruptions. The challenge for the EU is to be active instead of reactive, as observed by the researcher Andrew Monaghan.⁵³

Producers, Geology and Depletion

The sustainability of reserves in producer states is often questioned by observers. OPEC has so far had surplus oil production capacity but step by step OPEC's members have hit the production ceiling, even Saudi Arabia. Given Saudi Arabia's substantial reserves, it will continue to be a key exporter. Already today, Saudi Arabia is opting to increase its production capacity, i.e. raise the production ceiling, in order to increase its manoeuvring space in terms of supplies. Russia has taken an increasingly important role for exports of oil to Europe. Even if Russia's production has declined since the disintegration of the USSR, it is still the world's second largest producer.⁵⁴ At times, Russia has even surpassed Saudi Arabia in terms of production, which is a proof of an unsustainable production philosophy rather than an indication of large reserves.

Russia's reserves of oil are modest compared with those of Saudi Arabia, but its reserves of gas are overwhelming. Russia has around 30 per cent of the world's proven reserves of natural gas. However, according to analyses of the global hydrocarbon reserve base by the Association for the Study of Peak Oil (ASPO), it stands to reason that Russia's resources will not save the world from depletion.⁵⁵ Geological evidence suggests that even if new fields are found and all unconventional hydrocarbon liquids (UHL, i.e. oil sand, shale oil, tar sand) are taken into account, Russia's reserves will have but a marginal role. According to ASPO,

⁵³ Monaghan, Andrew (2007), *Russia and the Security of Europe's Energy Supplies: Security in Diversity?*, Swindon: Conflict Studies Research Centre (CSRC)/Defence Academy of the United Kingdom, January 2007, 07/01, p. 4.

⁵⁴ See further Appendix 1.

⁵⁵ Robelius, Fredrik (2007), *Giant Oil Fields - the Highway to Oil: Giant Oil Fields and Their Importance for Future Oil Production*, (Uppsala: Uppsala Universitet). For a global review, see especially the Hirsch Report, which was one of the most important peak oil reports during 2005: Hirsch, Robert L., *et al.* (2005), *Peaking of World Oil Production: Impacts, Mitigation and Risk Management*, SAIC, February 2005, N/A, and also the classic book Cambell, C.J. (1988), *The Coming Oil Crisis*, (Brentwood: Multi-Science Publishing Company and Petroconsultants S.A.).

Russia's production peaked in the 1980s and the current boost will reach its highest level around 2010.⁵⁶

There is also a debate between economists and geologists/geophysicists on what the impact from depletion would be. Economists argue that when prices rise, it is economically feasible to invest and to take new and previously too costly fields into operation. In addition, new exploration efforts would be undertaken. When new fields are found and results from investments are seen (some ten years later), supply levels increase and prices drop. The risk of depletion is therefore continually postponed and current prices will not remain, they argue.⁵⁷

In addition, even if Russia and the Former Soviet Union (FSU) have been the engines of non-OPEC production, FSU production growth is dropping sharply according to IEA figures. The bulk of FSU's supplies are provided by Russia, whose oil production is projected to slow down. Russian domestic consumption would slowly increase and thus net exports would gradually fall. In short, there will be an increasing dependence on OPEC, even if Russia will remain a key supplier.⁵⁸ Within Russia, the unstable situation and many problems indeed pose threats to its ability to supply sufficient amounts of oil and gas to world markets, but at the same time, these risks are what make it possible for risk-taking investors to earn money. Foreign investments are being made, despite the poor investment climate, but money primarily goes into companies via portfolio investments rather than via direct investments. At the same time, large windfall profit taxes on oil exports for the oil companies in Russia make it difficult to find enough domestic money for investments. Russia is arguing that it will only invest in fields if it can pre-sell its investments to Europe.⁵⁹ This can be interpreted as a way of pushing the responsibilities for supplies onto the customer. Implicitly it is a threat. Unless Europe adheres to Russian long-term contracts, supplies cannot be guaranteed.

Russia's market management is characterised by short-term gains, nationalistic and protectionist decisions and lack of investments, which has led to unsustainable production levels where short-term profit is overshadowing long-term sustainable

⁵⁶ ASPO (2005), 'The General Depletion Picture', *ASPO Newsletter*, No. 2, April 2005.

⁵⁷ Ibid., and arguments in Aleklett, Kjell (2005), 'Radetzki berättar bara halva sanningen [Radetzki is only Telling Half of the Truth]', *Svenska Dagbladet*, Published: 14 July 2005, Last accessed: 25 July 2005, Internet: http://www.svd.se/dynamiskt/brannpunkt/did_10121897.asp, Radetzki, Marian (2005), 'Priset på olja halverat 2010 [Price on Oil Will be Half as Much in 2010]', *Svenska Dagbladet*, Published: 12 July 2005, Last accessed: 25 July 2005, Internet: http://www.svd.se/dynamiskt/brannpunkt/did_10110577.asp.

⁵⁸ Murray, Isabel (2005), 'Russian Energy and European Dependence', *"New" Security Threats in Eurasia: Implications for the Euro-Atlantic Space*, Stockholm, 19-20 May 2005.

⁵⁹ Economist (2007), 'A Bear at the Throat', *The Economist*, 14 April 2007.

extraction policy.⁶⁰ While Europe promotes a liberalised market, Russia's domestic liberalisation is only partial and limited to certain sectors. In fact, several government bills that contradict marketisation ambitions have been seen, for example a bill that ensures that Gazprom's export monopoly will be maintained. Even if Russia has large reserves, the problems mentioned above impose heavy constraints on Russia's ability to produce sufficient amounts of gas to satisfy both domestic demand and export markets.⁶¹ The problems are aggravated by decisions to prevent foreign participation in the development of the Shtokman field,⁶² development of LNG in Sakhalin and development of large fields in Siberia. For years, Russian authorities have denied any problems in delivering exported energy, but during the last couple of years, open statements of concern have been seen. For example, the Minister of Economic Development and Trade stated that Russia faces energy shortages in the short term. Since a presidential election is looming, it can be expected that the domestic sector will be prioritised,⁶³ and export levels might be cut.

Gas from Russia is often Central Asian gas, Kazak and Turkmen gas most notably, sent via Russian pipelines. Central Asian gas is of two-fold benefit to Russia as it can re-sell it at a profit while still to a great extent preserving its own resource base. Furthermore, Russia is trying to ensure that Central Asian gas is routed via Russia territory instead of to China, India or elsewhere. A problem is that states such as Turkmenistan, in addition to Russia, are 'overcontracting' their gas, added to which are a Russian inability to produce enough gas for exports, a perceived need to prioritise the domestic sector and limited amounts of gas in neighbouring states such as Azerbaijan.⁶⁴ The result is that Europe should not be so confident that sufficient amounts of gas from Russia, Central Asia and the Caucasus will reach European

⁶⁰ For a comprehensive overview of these problems, see: Larsson, Robert L. (2006a), *Russia's Energy Policy: Security Dimensions and Russia's Reliability as an Energy Supplier*, Stockholm: Swedish Defence Research Agency (FOI), Scientific Report FOI-R--1934--SE and Leijonhielm, Jan and Larsson, Robert L. (2004), *Russia's Strategic Commodities: Energy and Metals as Security Levers*, Stockholm: Swedish Defence Research Agency (FOI), FOI-R--1346--SE.

⁶¹ Milov, Vladimir (2005a), 'Problemi energeticheskoi politiki Rossii [Problems of Russia's Energy Policy]', Moscow, 1 February 2005, Milov, Vladimir (2005b), *Russian Energy Sector and its International Implication*, Moscow: Institute of Energy Policy, 30 March 2005, Discussion Paper, and Riley, Alan (2006), 'The Coming of the Russian Gas Deficit: Consequences and Solutions', *CEPS Policy Brief*, No. 116.

⁶² Moe, Arild (2006), 'Shtokman-beslutningen: Forklaringar og Implikasjoner [The Shtokman Decision: Explanations and Implications]', *Nordiskt Östforum*, No. 4.

⁶³ Monaghan, Andrew (2007), *Russia and the Security of Europe's Energy Supplies: Security in Diversity?*, Swindon: Conflict Studies Research Centre (CSRC)/Defence Academy of the United Kingdom, January 2007, 07/01, p. 2. For figures on Russian exports to Europe, see Loskot-Strachota, Agata (2006), *The Russian Gas for Europe*, Warsaw: Centre for Eastern studies (OSW), October 2006, and Paszyc, Ewa (2006), *Gazprom in Europe: Faster Expansion in 2006*, Warsaw: Centre for Eastern Studies (OSW), February 2007.

⁶⁴ Fredholm, Michael (2006), *Gazprom in Crisis*, Swindon: Conflict Studies Research Centre (CSRC), October 2006, 06/48.

markets. In the short-term perspective, this risk is likely to materialise on cold winter days when Russia cannot guarantee deliveries to all European states, not even under existing contracts.



Figure 1: Oil pipelines from the FSU to Europe (Source: CGES)

Nationalisation Trends and Political Risks in Producer States

In the Middle East, transparency, international access and private ownership are far from adequate descriptions of the energy sector. This is a situation that the international energy companies have come to accept over the decades. The Soviet Union had similar characteristics. As indicated above, modern Russia, in contrast, showed remarkable improvements during the 1990s and became an appreciated market for external actors and investors. Although the risks were high, Russia's market stability and potential were still greater than in Africa.

Since 2003, Russia and Venezuela have had various incidents of state nationalisation of private assets. The Yukos and Sakhalin affairs are two flagrant examples in Russia, but other legislative measures to retake the commanding heights of the energy sector have also been seen. While the nationalisation schemes have been explicit in Venezuela during the tenure of President Hugo Chavez, the Russian schemes have been somewhat murkier. According to Monaghan, a good term for describing the Russian phenomenon is 'shady nationalisation', as there is no coherent energy strategy behind the policy. Much is happening in a grey zone. Currently about 27 per cent of the crude oil belongs to state companies, 16 per cent can be seen as a grey zone, and 57 per cent is in private hands.⁶⁵ Vladimir Milov, a prominent Russian observer and former Deputy Minister of Energy, also points out that the nationalisation incidents that have occurred are less transparent than they would have been if there had been a real and frank nationalisation scheme.⁶⁶ In this perspective, it would be wrong to say that the Russian state has nationalised the energy sector, but four things must be stressed.

First of all, when it comes to ownership of oil and gas production, the oil production sector is fairly open, while the gas production sector is controlled by the state. However, the state also has full control over subsoil resources, transport and exports. It would hence be misleading to focus on ownership of production when assessing the problem. The Russian state is more or less in full control of the flow of oil and gas.

Secondly, the current trends are pointing in negative directions, even if there are both positive and negative signs. Russian state control and interference are gradually increasing, often under legitimate pretexts.

⁶⁵ Monaghan, Andrew (2007), *Russia and the Security of Europe's Energy Supplies: Security in Diversity?*, Swindon: Conflict Studies Research Centre (CSRC)/Defence Academy of the United Kingdom, January 2007, 07/01, p. 4.

⁶⁶ *Ibid.*, p. 5.

Third, when some analysts, for example Jonathan Stern and Andrew Monaghan,⁶⁷ speak about all the independent gas producers in Russia, they are only referring to all the non-Gazprom producers. This means that they occasionally label companies where Gazprom has a stake as independent, and that they always include other state-controlled companies, for example the state-controlled company Rosneft. Thus, much of what is said about so-called independent companies is a chimera. Russian state control over the gas sector extends well beyond its official 51 per cent share of Gazprom. In addition, also independent gas producers must sell their gas to Gazprom if it is to be exported since Gazprom has an exports monopoly.

Fourth, making a point of the fact that private assets are not transferred to the state, but to other companies, is also misleading. The evident redistribution of assets from one private actor to another on political grounds is a serious blow to Russia's development toward a market economy. Whether these efforts are primarily driven by a political will or by the interests of the large energy corporations is of course of interest, but any answer is still compromising for the Kremlin. Either the take-overs are orchestrated by the Kremlin in order to support companies with a patriotic policy posture, such as Gazprom or Rosneft, or they are driven by strong corporate lobbies that the Kremlin is too weak to withstand. The first option is most correct, but it is important to stress that Gazprom often works in line with the government and the government often works in line with Gazprom's desires.

Although the Kremlin has no explicit strategy to nationalise the whole energy sector, it is clear that it has the intention of transferring power to companies that are state-loyal and patriotic. The upcoming elections in 2007 and 2008 might have an impact on the margin, but it is highly unlikely that the nationalistic stand would be abandoned. Russia's official energy strategy from 2003 clearly states that ensuring national security is the fundamental task of the energy policy.⁶⁸ However, a strategy does not have to be codified and published in order to be a strategy.

Ownership of the companies is of less importance than many analysts think. Political control over energy companies in Russia is not proportional to ownership shares. The Kremlin has formed a 'politically correct market economy' where the energy companies act on a more or less open market, but they are doing so in a way that does not contradict the intentions of the Kremlin.

⁶⁷ Ibid., p. 5. Another example is Stern, Jonathan P. (2005), *The Future of Russian Gas and Gazprom*, (Oxford: The Oxford University Press/The Oxford Institute for Energy Studies).

⁶⁸ Ministry of Industry and Energy (2003), 'Energeticheskaya Strategiya Rossii na period do 2020 goda [Russia's Energy Strategy until the Year 2020], Utverzhdena no 1234-r, 28 August, 2003.' *Ministerstvo promyshlennosti i energetiki Rossii*, Published: Last accessed: 7 February 2005, Internet: <http://www.mte.gov.ru/docs/32/189.html>.

The bottom line is that while the EU is liberalising its energy sector, the number of open energy markets elsewhere is decreasing. Traditional upstream markets have been closed for decades, but the Russian and Venezuelan markets are currently closing for nationalistic reasons. It is unlikely that the Russian market will become completely closed and state-run, but at the same time, it is highly likely that the negative trends will have an impact on the marketisation ambitions and on the production levels. In Russia, state-controlled companies are the least efficient. The independent producers are small, but highly productive. Incorporating these companies has been a strategy of Gazprom, but the result has been failure to halt the decreasing productivity of Gazprom. Any more fully-fledged Yukos-style asset take-overs in Russia are not very likely, but further shady redistribution of assets to state-loyal companies can be expected. It is important to remember that there are numerous regional dimensions, for example, companies such as Lukoil are not state-run but nevertheless it has received support in the St. Petersburg region. Strengthened state interference in Venezuela may also come about, and the closed markets of the Middle East will remain. Europe's ambitions to rely on the open markets for its energy imports are hence not as easy to achieve, as they may seem at first.

Coercive Price Politics and Price Volatility

It is self-evident that since most states in Europe are net consumers of energy, they prefer low energy prices, while producers such as OPEC and Russia prefer high prices. However, prices should not become so high that consumers look for alternative energy sources. This discrepancy is hard to overcome, but the mechanisms of a market economy usually have the answers by finding equilibrium of supply and demand. However, price volatility is often seen as a problem by all parties, which is interesting when it in fact constitutes evidence of a functioning market by being a responsive price regulator. Consequently, Europe cannot call for mechanisms to reduce volatility and at the same time increase the usage of market regulators in bilateral trade.

Unlike oil, gas is most often traded via long-term contracts. Gas prices are thus not discussed as often as oil prices, at least not until a political stand-off develops between consumers, producers or transit states. The price of gas is basically set administratively in bilateral negotiations and is intended to be correlated to a basket of oil products (with a delay of a few months). The basic principle is thus that gas is seen as an alternative cost to that of oil. This is a flawed principle since most states that import Russian gas cannot choose whether to use oil or gas in the short-term perspective, and when Russia deals with a state without options, it will always have the upper hand. The price negotiation processes are highly non-transparent and, as

some analysts put it, no one knows what the real market price would be if there were transparency.⁶⁹

The negotiations on gas prices are further highly politicised and informal barter deals have often been conducted. Russia has subsidised its prices in return for political or other concessions, but at the same time, it has had legitimate claims to raise prices and demand payment for delivered gas in cash rather than in barter. A core problem is that several consumers of Russian gas have been, and continue to be, indebted and have poor solvency. The legitimate claims for payments have nonetheless been exploited and there have been incidents of four-fold price increases, despite contracts being in place.⁷⁰ Russia has thus used its upper hand coercively and for example, Belarus has had to give up half its pipeline operating company in return for a six month postponing of a dramatic price rise. Several EU members, for example in the Baltic region, have had similar experiences.

Russia is what can be called the 'middleman monopoly power'.⁷¹ It is clear that speaking about a 'market price' is utterly wrong, both in a CIS and in an EU context. There exists no real market price for Russian gas. The setting of the price, as we know it, could best be described as a gradual price rise until the level that Gazprom has decided that every importer should pay is reached. The highest price is accepted as a market price. There is no price 'on the margin' and production and transportation costs have no correlation to the price. Finally, when Russia has bought Central Asian gas for USD50 and resold in Europe for USD250, it is evidence of either price manipulation or inefficient transportation – two explanations that European consumers of gas ought to worry about. An additional worry should be the environment. When producers such as Russia and the Russian companies opt for short-term gains instead of sustainable production-levels, there are substantial environmental problems and hazards embedded in production and exports.

Another challenge that the EU should be aware of is that when the EU, with support from the WTO and ECT processes, requires Russia to raise domestic energy prices, Russian companies lose their best incentive to export their energy to Europe. By advocating fair pricing schemes in Russia, which indeed is necessary, the EU runs the risk of having its imports cut back or de-prioritised.

⁶⁹ Smith, Keith C. (2006), *Security Implications of Russian Energy Policies*, Brussels: Centre for European Policy Studies (CEPS), January 2006, CEPS Policy Brief, 90, p. 4.

⁷⁰ Ibid., p. 4.

⁷¹ Bugajski, Janusz (2006), 'Energy Policies and Strategies: Russia's Threat to Europe's Energy Security', *Insight Turkey*, Vol. 8, No. 1, p. 146.

The So-called Gas Cartel and the Proposed 'Gas-NATO'

As the members of OPEC sell their oil on an open market, OPEC energy tends to be seen as less politicised than the energy of other producers. However, energy policies in the Middle East are also highly politicised,⁷² but the approach of OPEC is different from Russia's approach. OPEC primarily uses domestic production levels to affect world market supply and thus the price of oil. Russia is using the oil supplies to single importers to affect them and their relationship, for example in the cases of Lithuania, Estonia and Ukraine. OPEC's posture could be seen as less intimidating than Russia's, but OPEC's impact on world markets has been extremely strong and changes in supply have an immediate impact on world market prices and the whole world economy. It is hence more general than specific, but OPEC is a force to reckon with for the EU, even if its powers are less than during the 1970s.

When it comes to gas, Russia is forming a cartel that might evolve into something that media sources have labelled a 'Gas-OPEC'. In Doha on 9 April 2007, it was announced that the *Gas-Exporting Countries' Forum* (GECF), a meeting of the world's most prominent gas producers, such as Russia, Libya, Qatar and Iran, will join forces and deepen cooperation concerning the international gas market.⁷³ Russia will take a leading position that can be compared with Saudi Arabia's role in OPEC.⁷⁴ The members of the GECF control 62 per cent of the total global gas reserves and 80 per cent of the global gas trade,⁷⁵ something that indicates their potential powers. There are nonetheless fundamental differences between this structure and OPEC and its similarities should not be exaggerated. Labelling it 'gas-OPEC' is misleading. As indicated above, gas is traded by long-term contracts and there is no real world market price except for what is traded on the spot-market. The importance of the gas spot-market cannot be compared with the spot-market for oil. Gas is primarily traded via pipelines and it is therefore impossible to turn to an open market if the ordinary supplier is unreliable or cuts back production in the same way as OPEC does.

What a gas cartel could do initially, however, is to decide on export routes and divide the market between its members, thus maximising prices in the long-term

⁷² Bronson, Rachel (2006), *Thicker than Oil: America's Uneasy Partnership with Saudi Arabia*, (Oxford: Oxford University Press) and Simmons, Matthew R. (2005), *Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy*, (New Jersey: Wiley).

⁷³ Medetsky, Anatoly (2007), 'Khristenko Backs Gas-Pricing Group', *Moscow Times*, Last accessed: 10 April 2007, Internet: <http://www.moscowtimes.ru/stories/2007/04/10/001.html>.

⁷⁴ Kupchinsky, Roman (2007), 'The Saudi Arabia of Gas', *The National Interest Online*, Last accessed: 4 April 2007, Internet: <http://www.nationalinterest.org/PrinterFriendly.aspx?id=13880>.

⁷⁵ Fachinotti, Matteo (2007), 'Will Russia Create a Gas Cartel?' *Russian Analytical Digest*, Vol. N/A, No. 3, p. 14.

perspective.⁷⁶ The organisation would most likely focus on LNG, not pipeline gas. However, when prices are high, there are no real incentives for price collaboration, and that part of the equation would most likely only materialise if there were a price fall for LNG.⁷⁷

Currently, Russia's statements concerning the cartel can be seen as a tactical manoeuvre.⁷⁸ More advanced forms of cooperation will take some time to develop. Russia has nonetheless been rather offensive so far and its current policy has already, and to a great extent, undermined the role of importers.⁷⁹ Russia's dominant role should not be forgotten. The cartel would not exist without Russia. Russia controls who will be included and what the agenda should be. It is hence interesting to note that the Central Asian states are not included in the GECF. A key explanation is that Russia prefers to deal with them bilaterally, as it has the upper hand.⁸⁰ The politicised nature of the cartel is emphasised by the inclusion of Venezuela, a state that has good relations with Russia but that lacks any serious assets of gas. Despite the cartel ambitions and increased bilateral cooperation with other producers, there are indications of increased competition between important producers, for example Russia and Qatar and Iran. Algeria, in contrast, is a suitable partner for Russia,⁸¹ which explains why so many deals have been concluded with Algeria's Sonatrach. Russia is, in short, gaining increased influence in North Africa.

The GECF will thus be a producer cartel that has the potential to wield substantial political and economic clout over the EU and its members. However, further development is necessary for this clout to manifest itself. Under current premises, it is a paper tiger. In a negative scenario, small importers might be faced with an even tougher producer than today. Price hikes and other frictions can also be expected. However, at the same time, neither Russia nor any other producer wants to push consumers away from gas. It is in their best interests to be reliable and to avoid price hikes. This puts natural limitations on any over-zealous gas cartel aspirations.

For the EU, it is problematic that the ways of dealing with threats of this kind may result in further problems. For example, in order to tackle the problems from Russia's arbitrary gas policy, Poland has launched the idea of a gas-NATO within the EU.

⁷⁶ Socor, Vladimir (2007a), 'Gas Supplier's Cartel: not an "OPEC", but Cartel all the Same', *Eurasia Daily Monitor*, Vol. 4, No. 62.

⁷⁷ Stern, Jonathan (2006), *The New Security Environment for European Gas: Worsening Geopolitics and Increasing Global Competition for LNG*, Oxford: Oxford Institute for Energy Studies, October 2006, NG15, p. 17.

⁷⁸ Fachinotti, Matteo (2007), 'Will Russia Create a Gas Cartel?' *Russian Analytical Digest*, Vol. N/A, No. 3, p. 16.

⁷⁹ Socor, Vladimir (2007b), 'Toward a Russia-Led Cartel for Gas?' *Eurasia Daily Monitor*, Vol. 4, No. 63

⁸⁰ Ibid.

⁸¹ Fachinotti, Matteo (2007), 'Will Russia Create a Gas Cartel?' *Russian Analytical Digest*, Vol. N/A, No. 3, p. 16.

What Poland means is that the EU should have a clause on mutual defence and solidarity if any of the EU members is targeted for energy supply cuts. The idea was not very well argued and clumsily proposed and thus won little response, even after being relabelled a 'musketeer clause'. There has also been much talk about involving NATO proper, not only a designated gas-NATO. Naturally, NATO is in search of new post-Cold War tasks, but awarding NATO the responsibility of becoming a consumer watchdog would provide a dangerous precedent for the future system of energy trade. A reciprocal act by producers would be to use a military alliance to keep prices high, a development slightly more threatening than the GECF.

Obsession with Diversification

The main inputs of gas and oil to the EU via pipelines today come from the producing regions of Norway, Russia (via Belarus or Ukraine), the Middle East (via Turkey) and North Africa. Among all new initiatives, there are basically two types of projects; those that are driven by Russia and aimed at bypassing transit states, and those that are aimed at bypassing Russia and Russian pipelines. Diversification is the key word in both types, which illustrates that the EU's obsession with diversification is not a cure for all problems. Four things must be mentioned here. Firstly, some diversification is artificial. Pipelines, such as the planned Nord Stream pipeline,⁸² are not a diversification of supplier, but simply a diversification of supply route of Russian gas to Europe. Hence, an alternative pipeline may be important as back-up against natural disasters, but it is hardly a cure for problems stemming from the producer.⁸³

Secondly, diversification of source is not advantageous if gas from various producers is delivered by a single supplier. The energy producers in Central Asia are, theoretically, strong competitors to Russia. However, most supply routes are controlled by Russia and the Central Asian states have consequently become dependent on Russia for finding receivers for their oil and gas resources. Accordingly, Russia has been able to buy gas cheaply in order to resell it at a much higher price in Europe. This situation is one of the strongest incentives for the Central Asian states to turn to China or India as energy outlets. Some states have tired of this practice and Russia's exploitation of Turkmenistan and Kazakhstan is thus counter-productive for Europe. Russia's loss is becoming Europe's loss. From a political point of view, it does not matter to Europe whether there is Russia or Central Asian gas in the pipes if the pipes are still controlled by a single supplier.

⁸² Aimed at channelling Russian gas to Germany under the Baltic Sea, see further Larsson, Robert L. (2007), *Nord Stream, Sweden and Baltic Sea Security*, Stockholm: Swedish Defence Research Agency (FOI), March 2007, FOI-R--2251-SE.

⁸³ See Appendix 2 and 3 for notes on terminology in this section.

Thirdly, Europe is already somewhat diversified in terms of energy types, sources and transit routes, which would indicate that a secure situation is at hand. However, this situation makes it even more difficult to reach consensus on further diversification than it would have been if the energy situation had been less diversified. As a consequence, producers such as Russia are given more room for manoeuvre.⁸⁴

Finally, when actors in the EU devote large resources to issues of further import diversification, they are in fact, as indicated above, reducing the efforts to diversify the EU's consumption pattern. Obsession with finding new inlets of gas overshadows the more important concerns of fuel switching and energy conservation.

Supply Routes on the Agenda

For Europe, the discussion on import diversification has mostly been concerned with the idea of bringing Caspian energy to Europe without Russian transit. Pipes from the Caspian region encounter many geopolitical problems and have been on the agenda for decades, but the end of the story is in sight. One project is the Baku-Tbilisi-Erzurum (BTE) gas pipeline (Figure 2) aimed at bringing gas from the Caspian Sea via Georgia to Turkey.

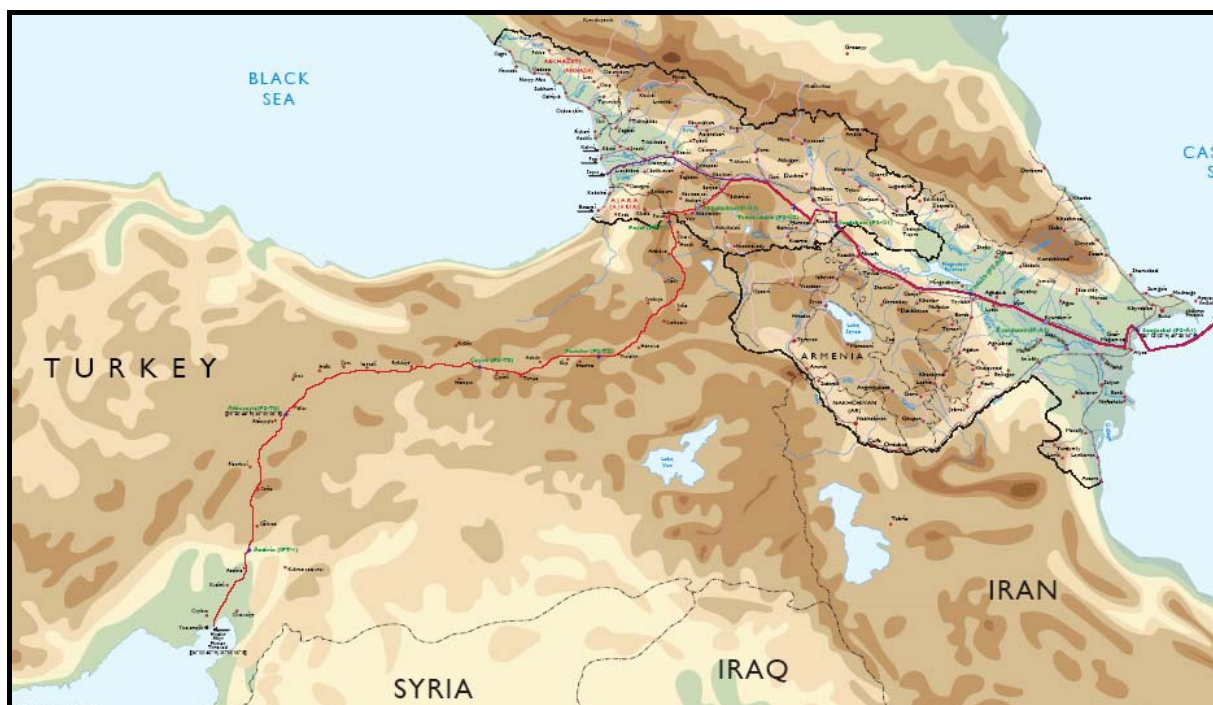


Figure 2: The BTC Pipeline (red) and the Baku-Supsa (purple). Source: CGES

⁸⁴ Monaghan, Andrew (2007), *Russia and the Security of Europe's Energy Supplies: Security in Diversity?*, Swindon: Conflict Studies Research Centre (CSRC)/Defence Academy of the United Kingdom, January 2007, 07/01, p. 8.

The BTE it is basically a parallel line to the newly inaugurated Baku-Tbilisi-Ceyhan oil pipeline (BTC, see Figure 2). Given Turkey's interest in EU membership, it is possible that Brussels would be willing to take advantage of Turkey as a transit state even if this would not be part of the formal EU plan. If so, the BTE pipeline will adopt a highly central role.

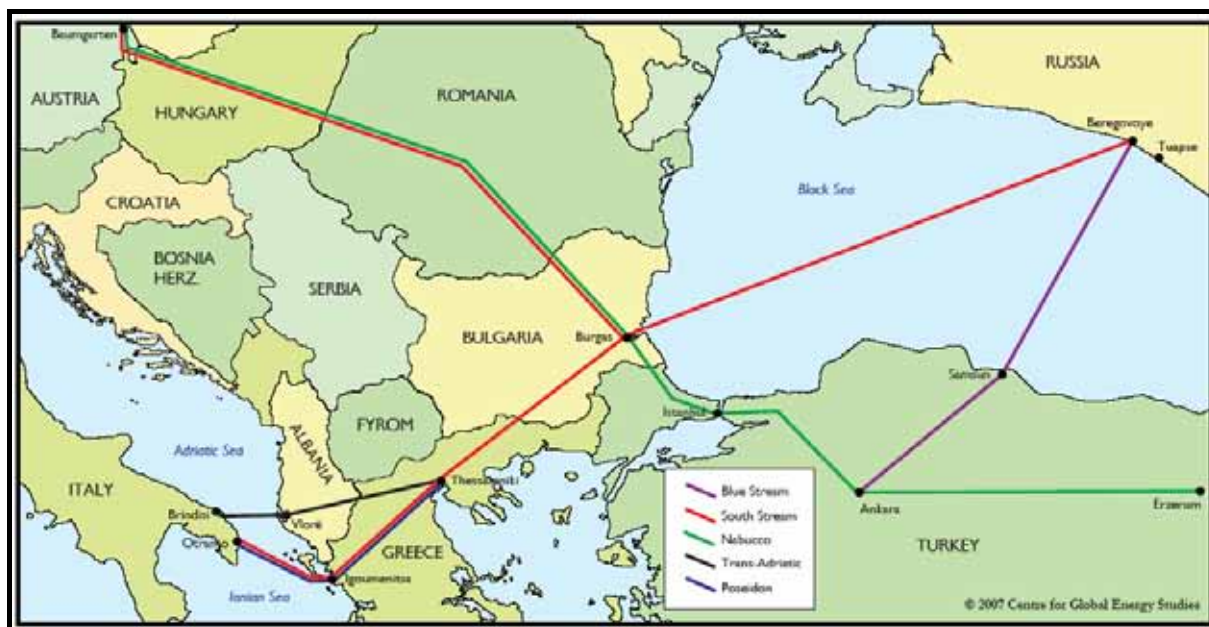


Figure 3: Proposed pipelines for bringing gas from the FSU to Europe. (Source: CGES)

A new route, called Nabucco (Figure 3) has also been proposed. It is basically a supply route of gas from Turkey (by the company Botas) to Austria (OMV Gas) via Bulgaria (Bulgargaz), Romania (Transgaz) and Hungary (MOL). The gas is intended to come from the Caspian region (for example via the BTE) and the Middle East (including Iran and Iraq). If it is finished on schedule, it will become operational between 2011 and 2014. From Europe's general point of view, the Nabucco is a good project as the gas may come from several different sources, not only Russia (even if gas would most likely come via the trans-Black Sea Blue Stream pipeline). In fact, the Nabucco pipeline was initiated by the European Parliament and Council of Europe in 2003.⁸⁵

However, there have been concerns about relying on Iran as it might be subject to sanctions. This problem could nonetheless be tackled by creating a trans-Caspian pipeline from Kazakhstan to Azerbaijan (that would connect to BTE).⁸⁶

A complicating factor is nevertheless that Georgia is interested in building a gas pipeline from Supsa on its Black Sea coast to Romania, possibly via Ukraine, the so-

⁸⁵ Kupchinsky 'The Saudi Arabia of Gas'.

⁸⁶ Ibid.

called White Stream initiative, which in the longer term could target the Polish market, but it is doubtful whether such a project will be a serious competitor,⁸⁷ if realised at all.

Romania is the most eager participant to Nabucco, but Hungary has at best been lukewarm and it wants to push the economic burden for the project onto the EU.⁸⁸ There are also indications that Hungary is becoming an energy political rogue state in the Balkans. In early March 2007, Hungary's socialist Prime Minister Ferenc Gyurcsany flirted with Gazprom to build an extension to Blue Stream, with the idea of giving Russia a back door into Europe. The reasons why Hungary's leadership did this at a time when several other states had voiced concerns over Gazprom's expansionism is not related to any strong affiliation to Gazprom, but rather a severe economic and political predicament. Budapest is yearning for cash at the same time as it needs to show its public that the government is capable of ruling. When Russia hinted at subsidised prices, Budapest gave in to Kremlin's desires.⁸⁹ The background story is that during the last couple of years, Russia has tried to take over Hungary's energy company MOL as a step to strengthen its position on the Central European markets. Putin promoted the deal already in March 2006, but not until 2007 has Budapest been willing to sell.⁹⁰

During most of 2007, the Nabucco seemed as a project in decline, but in September 2007, the process was boosted when the EU embraced the project stronger than before and key states, such as Azerbaijan expressed a willingness to take part. A new factor also emerged, which may in fact be counter-productive to Nabucco, namely that the Austrian company OMV opted for a take-over of MOL. There are also indications that Austria wishes to become the new gas hub, on Hungary's expense.⁹¹

The latest developments suggest that the plans for a Blue Stream II pipeline are being awarded less attention than a new, so-called South Stream initiative. Since the drawback of Blue Stream from Russia's point of view is that it relies on Turkey, and subsequently connects to Nabucco (Figure 3), alternative solutions were sought bearing in mind Hungarian compliance. The South Stream pipeline is hence Russia's idea of sending gas from its south coast (same place as for Blue Stream) to Bulgaria

⁸⁷ Alkhazashvili, M. (2007), 'Interest Growing in GUEU Pipeline', *Georgian Messenger*, Last accessed: 11 April 2006, Internet: http://www.messenger.com.ge/issues/1331_april_5_2007/eco_1331_3.htm.

⁸⁸ Deutsche Presse-Agentur (2007), 'Hungarian Energy Giant Calls for EU funding for Nabucco Pipeline', *Deutsche Presse-Agentur (Reposted at M&C News)*, Last accessed: 4 April 2007, Internet: http://news.monstersandcritics.com/business/news/article_1282023.php/Hungarian_energy_giant_calls_for_EU_funding_for_Nabucco_pipeline.

⁸⁹ Kupchinsky 'The Saudi Arabia of Gas'.

⁹⁰ Ibid.

⁹¹ Socor, Vladimir (2007c), 'Strategic Issues Facing the Nabucco Project', *Eurasia Daily Monitor*, Vol. 4, No. 174; Socor, Vladimir (2007a), 'Nabucco Gas Pipeline Project is Back on Track', *Eurasia Daily Monitor*, Vol. 4, No. 173.

on the west coast of the Black Sea. Once the gas reaches Bulgaria, there are two suggested routes. The northern route would end up in Italy, Gazprom's second largest customer after Germany, and the southern option would go to Greece. Russia claims that the South Stream would be a complement to Nabucco and Blue Stream, not a competitor. It would satisfy Europe's requirement for diversification as it could also be used for Central Asian gas, according to Russia.⁹² If it materialises, it will become highly expensive, much more expensive than a development of the Blue Stream, something that underlines the strategic rationale. Securing Bulgarian loyalty is hardly a problem as Russian-Bulgarian cooperation concerning the Burgas-Alexandroupolis oil pipeline has evolved smoothly.

Furthermore, Nord Stream (Figure 4) is Russia's and Germany's option for bypassing transit states in Eastern Europe, an option that has been met with a high degree of scepticism in the Baltic Sea Region.⁹³ None of the alternative options has gained momentum.



Figure 4: Route of the Planned Nord Stream Pipeline. Source: Nord Stream

⁹² See for example, Socor, Vladimir (2007b), 'South Stream: Gazprom's New Mega Project', *Jamestown*, Published: 25 June 2007, Last accessed: 13 August 2007, Internet: http://www.jamestown.org/edm/article.php?article_id=2372249.

⁹³ Since this topic discussed in some depth in a special FOI-report, it will be left outside this report. See further: Larsson, Robert L. (2007), *Nord Stream, Sweden and Baltic Sea Security*, Stockholm: Swedish Defence Research Agency (FOI), March 2007, FOI-R--2251-SE.

Diversification is therefore troublesome. When alternatives to the volatile Middle East are sought, Russia is the option that comes to mind and when the politically unreliable Russia is to be replaced, states such as Iraq and Iran come to mind. Much of the EU's efforts can hence be called a false diversity.⁹⁴



Figure 5: Gas pipelines from the FSU to Europe

⁹⁴ Monaghan, Andrew (2007), *Russia and the Security of Europe's Energy Supplies: Security in Diversity?*, Swindon: Conflict Studies Research Centre (CSRC)/Defence Academy of the United Kingdom, January 2007, 07/01, p. 11.

Risks of Supply Interruptions

It is evident that the largest global threats of interruptions in oil supply stem from major events, such as the war in Iraq, a potential blockade of the Hormuz strait or the fall of the House of Saud. To single importers, natural disasters and threats to the physical safety of energy infrastructure pose the greatest danger as regards loss of supplies. Importers that are tied to a single inlet of gas are also vulnerable to disruptions in supply. The risks in this regard are aggravated if only pipeline-borne energy is at hand, but they are reduced if there are several import channels. In addition, threats to supplies can also have political bearings, which may well prove to be more difficult to handle than natural disruptions.

Europe is tied to producers in northern Africa, Russia and the former Soviet Union and implicitly to the Middle East via Turkey. Few of these suppliers have deliberately cut exports of oil or gas. According to Jonathan Stern, only one incident of political instability has caused a disruption of energy supplies. This was an incident of LNG from Aceh in Indonesia to Japan and Korea in 2001.⁹⁵ Other non-political incidents include explosions at the trans-Mediterranean pipeline in 1997, liquid contamination of the UK interconnector in 2002 and a few cases of fire.⁹⁶ Partly based on this fact, Stern draws the conclusion that there is no need to worry about threats to supplies.

Although Stern includes political instability in his review, he fails to see that cuts in supplies can have *deliberate* political underpinnings. A wider and more honest definition than Stern's reveals another pattern than that he outlines. While the Soviet Union never cut supplies of gas to Western Europe, not even at the height of the Cold War, Russia has resorted to this practice on numerous occasions since 1991 and its political reliability can thus be questioned. According to the Economist, the reasons are three-fold. First of all, the Soviet Union was more predictable than Russia is. Secondly, the old Oil and Gas Ministry of the USSR did not try to take over Western European energy infrastructure as Gazprom does. Thirdly, while the Soviet sector was run by technocrats, Russia's energy sector is "controlled by former KGB men obsessed with money and power".⁹⁷ To some extent this is true, but the vested strategic interest of the state and the major energy corporations is also highly important as an explanative variable.⁹⁸

⁹⁵ Stern, Jonathan (2006), *The New Security Environment for European Gas: Worsening Geopolitics and Increasing Global Competition for LNG*, Oxford: Oxford Institute for Energy Studies, October 2006, NG15, p. 18.

⁹⁶ *Ibid.*, pp. 17f.

⁹⁷ Economist (2007), 'A Bear at the Throat', *The Economist*, 14 April 2007.

⁹⁸ For a in-depth review of this topic, see Larsson, Robert L. (2006a), *Russia's Energy Policy: Security Dimensions and Russia's Reliability as an Energy Supplier*, Stockholm: Swedish Defence Research Agency (FOI), Scientific Report FOI-R--1934--SE.

In short, Russia's political reliability as an energy supplier depends on the time perspective, the receiver and the context. By and large, Russia is a reliable supplier in that most of its energy exports have reached (and most likely will continue to reach) their destination. However, this does not necessarily mean that energy flows will be spared from interruptions or political and economic frictions.⁹⁹

The risk of supply interruptions aimed at the states of the Former Soviet Union (FSU) exists today. Depending on bilateral relations and the present context, the risk for partial and/or short-duration cut-offs is high, especially against Belarus, Ukraine, Moldova and Georgia. In the short run, the risk of total and/or permanent cut-offs is low for all these states. In the long run, risks are difficult to estimate, but cannot be overlooked. The risk of supply interruptions aimed at non-FSU Europe is rather low. However, Estonia was subject to supply cuts as recently as May 2007, and there are further risks of non-FSU Europe being affected by interruptions aimed at any of the FSU states. Russia appears to see certain European states as 'affordable collateral damage'.

Preceded by a potential political crisis, the risk for partial and/or short-duration cut-offs aimed at non-FSU Europe is increasing. In that case, it would likely be aimed at a specific importer rather than at a group of states (such as the EU). Risks in the long-term perspective are difficult to estimate. Anything can happen. If a total and/or permanent cut in supply to Europe were to materialise, it would have to be preceded by a serious degeneration of relations in combination with an improved technical ability for Russia to export energy elsewhere.

The barriers (Russia's needs for export revenues, transit dependence and risks of destroyed reputation, etc.) against short and partial supply interruptions and coercive policy are weak. They are only safeguards against long duration cut-offs or against important customers. If Russia were to develop in a democratic direction and show genuine commitment to market reforms, the threshold for abuse would increase. It would also increase if Russia ratified and observed the EU Energy Charter.

At present, there is a risk of individual states experiencing coercive policy, 'annoying behaviour', 'technical problems', 'contractual disputes', 'discriminatory price policy' or similar problems aimed at achieving geopolitical, political, or economic goals. The risk is higher for the FSU as Russia's priorities and leverage are strongest there. In practice, Russia does not have the resources to target all states but can act on a few markets at a time. It is apparent that the consequences can be far-reaching, no matter

⁹⁹ This and the subsequent paragraph are based on the reviews in *Ibid.* and Hedenskog, Jakob and Larsson, Robert L. (2007), *Russian Leverage on the CIS and the Baltic States*, Stockholm: Swedish Defence Research Agency (FOI), June 2007, FOI-R-2280--SE.

what the target. Russia will most likely not strive to use the energy lever for the sake of it, but it will by all means strive for a strengthened capability. By all means, it would be prepared to use the energy level if it deemed it necessary.¹⁰⁰ It is worth noting that Russia by its previous bullying of small neighbours has created an atmosphere of both fear and compliance among its customers.

If Russia realises its ambition to take into account political considerations when it chooses receivers of its oil and gas, it is unlikely to result in any major impact in the short run as the infrastructure system will not allow any radical changes. It could, however, have an impact on the margin. For example, if the infrastructure system makes possible a diversion of supplies to other directions, Russia's leverage will increase when it comes to negotiations for new contracts. Limited supplies could thus be earmarked for China or other customers instead of Europe. Long-term contracts could be used to an even greater extent than today and it is not impossible that negotiations would be linked to political issues.

As indicated above, there are also reasons to question Russia's reliability on the grounds of technical problems and inability to supply gas on cold winter days. For example, in January 2006, a few weeks after the Russian-Ukrainian gas row, Gazprom reduced supplies to Hungary, Bosnia and Herzegovina. While gas supplies were cut to Europe, Russia's domestic consumers received more gas.¹⁰¹ This is an indication that Russia's supply may not be totally reliable even if the political dimensions are overlooked. It is possible to say that Russia's strategic reliability is large, while its tactical reliability is less so.

The fundamental challenge for the EU is nonetheless that while it criticises Russia's track-record of unreliability and seeks other channels of energy imports, at the same time it provides a legitimate argument for Russia to question Europe's reliability as a consumer. Hence, there is a risk of Russia and Europe turning away from each other even if their proximity would provide excellent grounds for further trade. Andrew Monaghan has called this the 'energy dilemma'.

¹⁰⁰ Suggestions of boycotts against Denmark have for example been seen in the wake of the Zakayev incident, see: Larsson, Robert L. (2006b), *Sweden and the NEGP: A Pilot Study of the North European Gas Pipeline and Sweden's Dependence on Russian Energy*, Stockholm: The Swedish Defence Research Agency (FOI), FOI-R-1984-SE, p. 58ff.

¹⁰¹ Grib, Nataliya (2006), 'Gazprom Cuts Gas Supply to Europe', *Kommersant*, Published: 19 January 2006, Last accessed: 19 January 2006, Internet: <http://www.kommersant.com/doc.asp?idr=500&id=641939>.

4 Geopolitical Struggle and the Wider Picture

This section shows that global energy trade is characterised by competition. One of the fundamental aspects of international competition is the rules of the game, something that is elaborated on in this section, before an outline of further challenges is provided.

Competition for Global Resources

The energy resources of the North Sea are relatively expensive and difficult to explore and develop compared with those in the Middle East, the Caspian region, South America or Africa. The political climate in Norway and the UK are nonetheless as stable as one could ask for. Therefore, the major challenges for Europe's energy supplies, in a political sense, are not found around the North Sea, but rather in Russia/former Soviet Union, in the Middle East and in Africa. In these regions, competition among important consumers, especially Europe, China and the US, is a hot topic. The US is dealt with in a separate report by FOI.¹⁰² Issues relating to Africa, China and Russia are further elaborated on below.

Numerous books have warned of looming resource wars.¹⁰³ Resource wars are seen as almost inevitable and energy assets are assumed to be central explanations behind conflicts such as the Second World War and the wars on the Balkans.¹⁰⁴ There is nothing in this report that confirms such pessimistic prophecies. In fact, drawing too hefty conclusions on the inevitability of resource wars removes attention from other problems, such as mismanagement, lack of democracy and market competition.¹⁰⁵

Struggle for Russian Resources

As stated, since the fall of the USSR Moscow has confronted Europe, strategically speaking. This posture, and the physical location of existing energy infrastructure, ensure Europe's place as a natural customer of Russian resources, especially natural gas. However, oil is easier and cheaper to transport, which means that Russia could target China, Japan or the US much more easily than Europe, should it ever feel the need to do so. The present situation provides strong grounds for increased competition between the energy-consuming giants. Analysts often point to a silent

¹⁰² von Knorring, Hans and Larsson, Robert L. (Red.) (2007), *USA:s energisituation and amerikansk energipolitik*, Stockholm: Totalförsvarets forskningsinstitut (FOI), Augusti 2007, FOI-R-2308-SE

¹⁰³ Klare, Michael T (2001), *Resource Wars: the New Landscape of Global Conflict*, (New York: Metropolitan Books), and Klare, Michael T (2004), *Blood and Oil: The Dangers and Consequences of America's Growing Dependency on Imported Petroleum*, (New York: Metropolitan Books).

¹⁰⁴ Savic, Vladimir (2006), *Det tysta kriget: olja, makt, kontroll*, (Stockholm: Natur och Kultur).

¹⁰⁵ See for example arguments in: Salehyan, Idean (2007), 'The New Myth about Climate Change', *Foreign Policy*, Published: August 2007, Last accessed: 15 August 2007, Internet: http://www.foreignpolicy.com/story/cms.php?story_id=3922.

war between producers and consumers, but a less emphasised aspect is the competition among consumers. Competition among consumers is only of benefit for the producers. As indicated, president Putin has responded to international criticism of Russia's energy policy by threatening to turn eastwards, towards Japan and China, where 'more grateful' receivers can be found. Implicitly, he is saying that critics of Russia may well end up without oil or gas, a statement that might invoke a culture of appeasement.

There are physical limitations to Russia's ability to realise its threat in the short-term perspective, but the energy-thirsty powers of Asia are more than willing to pay for additional pipeline capacity from the Russian heartland. Their interest in criticising Russia for its energy policy and taking a tough stand on human rights is also less than lukewarm, which is appreciated by Moscow. Consequently, during the coming years and decades, there will likely be shifts in the Russian export pattern. Russia's ambition to conclude long-term contracts suits the Chinese tradition, while Europe is more interested in developing the spot markets for oil and gas. The Russian fields may also be earmarked for exports to a specific customer. Even if China is refused ownership of Russian resources, China usually has a practice of locking up assets, and it does not really matter that this, objectively speaking, can be seen as counter-productive.¹⁰⁶ This is a game of high stakes where Europe is falling behind. There is a clear risk that the US, China, India and Japan are sidestepping Europe and laying their hands on what Russia has to offer.

The struggle for Russian resources can be seen concerning Japan and China, the US and China are competing in South America and all three actors are competing in Central Asia. The competition is not only an issue about money, but also about strategic commitment and influence. Russia and China have a historical legacy of mistrust and competition, along with a number of minor disputes. These problems are seemingly being bridged by the energy trade, but they are far from being resolved. Russia does not want to become strategically dependent on China as a customer for its energy. This is why Russia wants the proposed pipeline from Russia to Asia to go to the Pacific coast and not only to China. From Moscow's point of view, it is much better to have a pipeline to the Pacific Coast since energy can be sold on several markets. However, at the tactical level, the situation quickly changes and Russia is using its resources in order to enforce economic concessions and economic support for its projects.

¹⁰⁶ Se Douglas, John Keefer, *et al.* (2006), *Fuelling the Dragon's Flame: How China's Energy Demands Affect its Relationship in the Middle East*, Washington D.C.: U.S.-China Economic and Security Review Commission, 14 September 2006.

Since so much is being said about Russia and its impact on Europe, it is necessary to sum up what Russia's objective are. Janusz Bugajski has summarised it by saying that Russia wants to:

- Achieve primary influence over the foreign policy of nearby states
- Make major economic inroads towards monopolistic positions in Eastern Europe
- Convert Eastern Europe's dependence to long-term intergovernmental influence
- Limit the scope of Western institutional enlargement
- Exploit Eastern Europe as a springboard for rebuilding a larger sphere of influence
- Undercut the transatlantic link.¹⁰⁷

That the European-Russian energy relation is riddled by controversies and differences of opinion should be clear by now. On the one hand, Russia is interested in good relations with the EU as whole (despite what has been here said so far), but not necessarily with all individual members. As long as the EU does not act with high responsiveness in order to assist its members, exploitation will continue. Both the EU and Russia seem to be willing to sacrifice small consumers in order to uphold positive relations. The battle for the lines of division in this case is crucial and affects relations with new EU members, but also with other neighbours. On the other hand, Russia has failed to grasp how the EU interprets the way it treats its neighbours, such as Estonia and Georgia.¹⁰⁸

Europe is faced with a further difficult question. It has to make up its mind whether it wants to convince producers such as Venezuela, Russia and Nigeria to play by European rules, or whether Europe should adapt to the *modus operandi* of the great powers of China, the US and India in the struggle for energy.

The China Factor

China is the world's second largest consumer of energy after the US. Energy policy in China is carried out in close association with governmental, societal and economic and strategic policy. Oil is the focus for China. It strives for primary sources and diversify its imports and to enhance security of transport.¹⁰⁹ China is largely focusing on Saudi Arabia, Iran, Angola and Russia, but it also has agreements with such states

¹⁰⁷ Bugajski, Janusz (2006), 'Energy Policies and Strategies: Russia's Threat to Europe's Energy Security', *Insight Turkey*, Vol. 8, No. 1, p. 144.

¹⁰⁸ Perovic, Jeronim and Orttung, Robert (2007), 'Russia's Energy Policy: Should Europe Worry?' *Russian Analytical Digest*, Vol. N/A, No. 3, p. 2.

¹⁰⁹ Andrews-Speed, Philips (2006), 'China's Energy Policy and its Contribution to International Stability', in: Zaborowski (Ed.) *Facing China's Rise: Guidelines for an EU Strategy*, (Paris: Institute for Security Studies), p. 74.

as Nigeria, Brunei, Venezuela and Iraq. China's main driver is its economic development, but this is closely related to its national security, an ambition to own resources, to promote its national champions and to support wider diplomatic and strategic goals.¹¹⁰ In this context, it is worth bearing in mind that the Chinese perspective on development is long-term in nature.¹¹¹ Step-by-step, China is building a mighty state and biding its time.

Despite its old grievances, Russia has been helping China by supplying arms and technology in order for China to acquire a blue water navy, which increases the stakes vis-à-vis the US. From a Western point of view, it is problematic that China ignores human rights, is engaged in increased protection of US-dominated sea lanes and pays too little attention to the environment, since this policy results in international frictions.¹¹² However, it should be stressed that the Chinese policy is not necessarily aimed at undermining the EU or the US, but is grounded in an ambition to meet its domestic needs.¹¹³ It is also worth stressing that the criticism put forward by the EU and the US concerning China, Russia and other states is not the only factor. Just because governments are outspoken does not mean that companies refrain from doing business.

Producers such as Russia, Iran and Venezuela can furthermore play off the EU and China, but this risk should not be exaggerated. It will most likely occur to some extent, but it will either be limited in scale or occur coercively within some kind of normal framework. Any aggressive form of play-off is unlikely as producers have concerns about security of demand and the fact that there are always other suppliers in the long-term perspective.¹¹⁴ The Chinese-Russian cooperation mentioned above is nevertheless not as substantial as it may seem, as most of it is only political declarations.¹¹⁵ It is not in China's favour to strengthen Russia and most of the cooperation has been in Russia's favour, according to some sources.¹¹⁶ On the one hand, the cooperation with China is hampered by deep mutual mistrust and competition with historical routes. On the other hand, Russia is tied to Europe, but

¹¹⁰ Ibid., pp. 74-75.

¹¹¹ For more information on China, see Kiesow, Ingolf (2004), *China's Quest for Energy: Impact upon Foreign and Security Policy*, Stockholm: The Swedish Defence Research Agency (FOI), FOI--1371--SE, och Sandklef, Kristina (2004), *Energy in China: Coping with Increased Demand*, Stockholm: The Swedish Defence Research Agency (FOI), FOI-R--1435--SE.

¹¹² Andrews-Speed, Philips (2006), 'China's Energy Policy and its Contribution to International Stability', in: Zaborowski (Ed.) *Facing China's Rise: Guidelines for an EU Strategy*, (Paris: Institute for Security Studies), p. 79f.

¹¹³ Ibid., p. 78.

¹¹⁴ Ibid., p. 79.

¹¹⁵ Itoh, Shoichi (2007), 'Sino-Russian Energy Relations: The Dilemma of Strategic Partnership and Mutual Distrust', in: Kimura (Ed.) *Russia's Shift toward Asia*, The Sasakawa Peace Foundation), p. 74

¹¹⁶ Jakobson, Linda and Daojiong, Zha (2006), 'China and the Worldwide Search for Oil Security', *Asia-Pacific Review*, Vol. 13, No. 2, p. 69.

does not want to increase this engagement, as Europe has low growth compared with China. China has larger growth, but pays less for imported energy. On the other hand, Russia does not want to give China an increased influence and there are doubts about China's potential as a customer, even if its energy consumption is increasing.¹¹⁷ Contradictory indications are thus apparent.

When the US strengthens its ties with India,¹¹⁸ for example in order to balance Chinese influence, this has an impact on Chinese relations with Pakistan when it tries to counter-balance the US. When the US supports India's nuclear programme, it also undermines the Non-Proliferation Treaty (NPT) and provides Iran with yet another argument for continuing its nuclear efforts with the support of Russia (which is not too happy about the power position of the US). Energy and strategy thus become intertwined on an arena that may well have military implications. At the same time, the US is eager to ensure that Russia's support to Iran is kept to a minimum, and that Russia does not interfere in America's endeavours to tackle Iran's nuclear ambitions. As a result, Washington has taken a low policy line on Russia's coercive energy policy against Ukraine, Estonia and Georgia. The US does not want the EU to become too dependent on Russia, but at the same time, dependence on Russia is still better than on states such as Iran. The bottom line is that Europe is the natural option and preferred customer of Russia, but Russia's policies and Europe's unwillingness to abide to Russian policies result in sub-optimal solutions.

Russian-European Cooperation and EU Interest in the African Arena

As Europe's policy is of a short-term nature, it tends to miss the big picture when it is occupied with technical cooperation with Russia or other foreign policy issues. Russia and Europe have been trading in energy for a long time, but in essence, the Russian-EU energy partnership was launched in 2000 by the sixth EU-Russia summit, which proposed a new energy dialogue. However, only a few issues are dealt with on the aggregated EU-Russia level, partly because not all European states are members of the EU, and partly because most states pursue their own agendas and therefore opt for bilateral policies towards Russia. This is a circumstance that is promoted by Russia. It prefers a situation where it can deal directly with Brussels when it suits Russia and go for bilateral approaches when Brussels is difficult to tackle or lacks the authority to be decisive. This disunity is of gain to Russia when dealing with Europe. The EU has not yet taken any actions to prevent single members from entering long-term contracts that other members consider

¹¹⁷ Monaghan, Andrew (2007), *Russia and the Security of Europe's Energy Supplies: Security in Diversity?*, Swindon: Conflict Studies Research Centre (CSRC)/Defence Academy of the United Kingdom, January 2007, 07/01, p. 6f.

¹¹⁸ For a deeper analysis on India and its energy policy, see Kiesow, Ingolf (2007), *India's Quest for Energy Security*, Stockholm: Swedish Defence Research Agency (FOI), February 2007, FOI Memo 2003.

problematic. Thus far, the most important EU projects for international cooperation are:¹¹⁹

- The European Economic Area agreements
- The Baltic Sea Energy Cooperation
- The Multi-lateral Nuclear Environmental Programme for Russia
- The Energy Charter Treaty
- The EU-Russia Energy Partnership
- The Interstate Oil and Gas Transport to Europe (INOGATE) Programme
- The Mediterranean Energy Partnership
- The Balkan Energy Interconnection Task Force.

However, the bottom line is that all these projects are vague and have largely failed to construct a solid foundation for deep cooperation between Russia and the EU. Bilateral projects are overshadowing common efforts.

Another energy political theatre is Africa. Europe has well advanced its interests in northern Africa over the years, but it is lagging behind in the sub-Saharan region. In northern Africa, there are historical bonds and developed pipeline grids across the Mediterranean and trade has more or less taken place according to European market rules. In sub-Sahara, the market climate is slightly different, and states such as China have had a comparative advantage in that it pay less attention to issues such as democracy, environment and human rights. China is thus much better than Europe when it comes to acting on the premises of political realism. There also is a common misunderstanding in Europe that the EU's way of conducting energy policy and trade in energy resources is the 'normal way'. In fact, the international energy scene is a harsh environment where almost all actors use coercive means to advance their interests. The European *modus operandi* is an exception to the rule.

Competition is Looming

There are some differences between the actors on the international energy scene. Russia and OPEC are net producers and thus try to maximise profit or utilise their energy power to obtain political, economic or other concessions. China and the US, in contrast, are net consumers, and occasionally use forceful means to ensure access to energy resources. Consequently, Europe has to tackle Russia on its home turf, and China and the US on the African scene, as the African producers are not afraid of letting the external actors compete for lucrative or advantageous contracts. Producers such as Norway use less arbitrary policies when they sell their energy, and those that do have an offensive stand, for example Venezuela, have little power over Europe and instead see the US as the main adversary. This is why Russia is the single most

¹¹⁹ Andrews-Speed, Philip (2003), 'Energy Security in East Asia: A European View', *Symposium on Pacific Energy Cooperation*, Tokyo, 12-13 February 2003, p. 8f.

important energy-supplying state to Europe (in spite of the great general importance of the Middle East). Saudi Arabia, as strong as it may be, has never demanded that a European country should hand over its nuclear weapons, its fleet, important energy companies, ports or their infrastructure as part of payments. While it is true that European consumers have paid their bills to Saudi Arabia to a greater extent than Georgia has to Russia, the differences in approaches cannot be overlooked. Russia's search for money, power and strategic influence makes it *the* most problematic producer to handle for the EU.

Despite European criticism of Russia's development and energy policy, it stands without doubt that all important consumers will continue to import energy from Russia. If any firm signal of discontent is to be sent to Moscow, it will likely be necessary to make sacrifices. Dependence on Russian resources currently overshadows most political needs to affect Russia's development. It is also unlikely that the US would take a tough line on Russia's energy policy (even if Russia were of less importance to the US than it is to Europe.)

Different Approaches – Double Trouble

As indicated, Moscow has been moaning about the ungratefulness of Western importers and continuously claims that criticism is one-sided and that Russia is not the worst boy in the class. Moscow is absolutely correct. The political instability and political risks in Russia are by far smaller than in Africa. Its political reliability is far greater than Venezuela's, and its energy sector is much more liberal, transparent and accessible than those of the Middle East, for example Qatar or Saudi Arabia. Still, Europe is complaining and this puzzles Moscow. However, if Moscow understood Europe's notion of democracy and market economy, it would see the point from Europe's perspective. Europe still believes in the potential of Russian development towards a market economy, and thus it expects more of Russia than of most other producers. Russia is a member of the G8, Council of Europe, UN Security Council and possibly also the WTO in due course. In Europe's view, Russia therefore ought to behave as a responsible great power, playing the same game by the same rules as Europe does.

If the EU were to take a common stand as a consumer group, it would be easier to affect Russia and more difficult for Russia to set the rules of the game and exploit differences between EU members. It must be remembered that from Russia's point of view, its institutional tradition of cooperation with the EU is only a few decades old, while relations to the individual countries, such as Germany, France or the UK, are

centuries old. In the EU's view, there have been some 'achievements' between 2000 and 2003, namely:¹²⁰

Access for Russian companies to the EU's internal energy market,

The confirmation of the importance of long-term natural gas supply contracts and the work in resolving the issue of destination clauses that exist in certain long-term contracts for gas,

The increased opening of the Russian energy sector to European investments,

The identification of a number of important energy infrastructure projects as being of common interest, including the Northern Trans-European gas pipeline,

The forthcoming mandate from the EU Member states for the Commission to negotiate on the issue of trade in nuclear materials. This will mean that negotiations should commence in January 2004,

Close co-operation between the EU and the Russian Federation in the field of enhancing the safety of the transportation of oil by maritime transport,

The agreement to analyse the feasibility of a non-commercial risk guarantee mechanism which could significantly improve investments in the Russian energy sector by reducing the perceived risks,

The establishment of a technical joint working group to examine all the issues related to the interconnection of the continental European electricity grid with that of the Russian Federation.

These few sentences are an excellent illustration of the EU's posture. In 2007, the EU condemned the Russian entry onto the European market and Russian usage of long-term contracts were seen as a problem, while in 2003, it saw the granting of access for Russia and ensuring long-term contracts as important achievements.

Practically speaking, cooperation exists but is rather vague in nature and much remains to be done. The deep-seated problem in energy relations between Russia and Europe is not technical in nature, but originates from disparate views on cooperation. This is the most fundamental rationale behind Russia's energy policy. It is what infringes upon Russia's (albeit modest) efforts to get integrated into international

¹²⁰ EU Commission (2003), 'Conclusions of the Round Table on Energy Strategies Held in the Context of the EU-Russia Energy Dialogue's Conference on the Comparative Analysis of European and Russian Energy Strategies', *The European Commission's Delegation*, Published: 17 October 2003, Last accessed: 25 April 2005, Internet: www.delrus.cec.eu.int/en/images/pText_pict/217/Energy%20RT%20Conclusions.doc.

structures. There is hence not a ground for common values in this field, even if Putin has refrained from confronting the West. What is more, the strategic partnership that Putin often boasts about is not respected by Russia.¹²¹ In short, Russia is not interested in adhering to any rules other than its own, let alone in discussing the rules.

Some analysts argue that the tide has turned and that a view of a positive-sum game is emerging.¹²² However, this is only the case concerning smaller firms, while at state level the trend is the opposite and suggests that Russia is moving in the opposite direction, especially after 2003.¹²³ From the Baltic perspective, there is a perception that the Commission lacks an understanding of the Russian influence, in particular on the new member states.¹²⁴ For both the EU and WTO, a topic of friction is the gas sector but Putin has taken a firm stand and in 2003 declared that:

*The gas pipeline system is the creation of the Soviet Union. We intend to retain state control over the gas transportation system and over Gazprom. We will not divide Gazprom. And the European Commission should not have any illusions. In the gas sector, they will have to deal with the state.*¹²⁵

This problem may prove to be the real Gordian knot for the development of a common EU energy policy. The lack of a shared value community between Russia and the EU may also hinder development of a common market, for example for natural gas. Agreements based on asymmetrical dependence will not provide the sought-after stability.

¹²¹ See: Menkiszak, Marek (2006), *Russia vs. the European Union: a "Strategic Partnership" Crisis*, Warsaw: Centre for Eastern Studies (OSW), January 2006, 22.

¹²² Lo, Bobo (2003), *Vladimir Putin and the Evolution of Russian Foreign Policy*, (London: Blackwell/Royal Institute of International Affairs), pp. 74-76.

¹²³ See Leijonhielm, Jan, et al. (2005), *Rysk militär förmåga i ett tioårsperspektiv - problem och trender 2005 [Russian Military Capability in a Ten-Year Perspective - Problems and Trends 2005]*, Stockholm: Swedish Defence Research Agency (FOI), June 2005, User Report, FOI-R--1662-SE.

¹²⁴ Smith, Keith C. (2004), *Russian Energy Politics in the Baltics, Poland and Ukraine: A New Stealth Imperialism?*, Washington D.C.: Center for Strategic and International Studies (CSIS), December 2004, p. 55.

¹²⁵ Putin cited in Fredholm, Michael (2005), *The Russian Energy Strategy and Energy Policy: Pipeline Diplomacy or Mutual Dependence?*, Swindon: Conflict Studies Research Center, September 2005, 05/41, p. 9.

5 Summary and conclusions

The aim of this report is to identify, analyse and assess the political side of Europe's energy predicament and import dependency. The objective is to identify the key factors of Europe's energy security and their consequences. This section presents a summary and conclusions of the report. The main conclusions at the aggregated level are pinpointed at the beginning of the report.

Future Energy Needs and Their Consequences

Europe's energy situation is non-sustainable, non-competitive and increasingly dependent on imports. This situation has a bearing on climate change, the economy and security of supplies. At the general level, the EU's goals for security of supply, sustainability and competition have not been achieved according to its own assessments. Developments during 2006 and 2007 suggest that new efforts will be made by the EU, but its import dependency is bound to increase.

It is also clear that the EU will increase its demands for, and imports of, oil and gas in the coming decades and energy will become more expensive in the future. Renewables will dramatically increase in importance, but their share of the EU's total energy balance will nonetheless remain low. Even if the EU reduces its emissions, it will only have a marginal impact on the level of global emissions. If the EU wants global impact, it should also act externally.

While technological modernisation and innovation programmes are advantageous for creating new jobs, they may also have serious drawbacks and create redundancies. Indeed, energy innovations are required, but if energy innovation policy is co-opted for labour policy reasons, it runs the risk of backfiring. It would be misleading to advocate change in energy policy on these grounds.

Increased usage of liquefied natural gas, LNG, is often suggested as a silver bullet to dependency problems. By all means, LNG will increase in importance for the EU, but it will only solve some of the problems and it is no replacement for the great volumes of gas.

Concerning coal, the challenge is that while increased usage of natural gas is one of the best options to reduce usage of coal, gas is still a fossil fuel and turning from coal to gas decreases the incentives to turn to renewables. In short, replacing coal with gas has positive short-term emission effects and looks politically attractive, but at the same time, it would be counter-productive in the long-term perspective as it would entrench usage of fossil fuels.

Ambitions to decrease usage of nuclear power will also have a negative effect on the ambitions to decrease emissions of GHG. Nuclear power would have to be replaced, at least in the short-term perspective, by solid fuel, gas or coal.

The EU's Policy Choices and its New Energy Political Posture

By being dependent on imports and confused over its energy policy, the EU's energy political clout is infringed vis-à-vis exporters. The power of the EU's foreign and security policy is further weakened by the lack of an energy component, since energy trade is an integral part of Europe's foreign relations. Without a common and coherent energy strategy, it will be difficult for the EU to face global competition. A significant problem is that the EU cannot decide whether it should see producers, such as Russia or OPEC, as problems or solutions to existing problems. If the EU is at a loss, it is highly problematic to advocate increased pressure on producers in response to perceived threats and problems. The EU's potential as a consumer lobby therefore remains weak.

The present lack of consensus, both between EU members and between EU institutions, exacerbates the lack of focus and momentum. Forming an energy policy requires the members and institutions to look at what is best for the union as a whole, while national security by definition is national in character. As said, no state puts common European security as its own overarching national security. This is one of the EU's most central dilemmas.

Furthermore, the EU seems to be moving away from a market-based approach to a geopolitical approach. This is a step towards a realistic posture of the EU, and the shift resembles the energy policy postures held by all the major powers outside of the EU. Europe's adherence to market mechanisms on the global energy scene is by and large an anomaly since other major players largely act along the lines of *realpolitik*.

Ever since the Coal and Steel Union, interdependence has been a guiding factor in Europe. Today, however, the interdependence seen between the EU and external energy producers is only partial. It is true for example that Russia and the EU need each other as seller and buyer of energy, but this does not mean that Russia pays equal attention to all of the EU's members. The asymmetries are so strong that unless the numerous statements on 'interdependence' are clarified, they will lead the observer to draw the wrong conclusions. It would be a breakthrough if the EU stressed the asymmetrical nature of the interdependence that exists. In the long-term perspective, the link between the EU's common foreign and security policy (CFSP) and its energy policy could evolve from a discussion on whether the EU should resort to military means to secure energy supplies, for example by protecting shipments of oil.

If the EU moves towards a geopolitical posture, it would also mean that its adherence to interdependence as a source of stability and security would be weakened. This course is a one-way street and the EU will lose credibility if it advocates interdependence and then acts in opposition to it. It would also mean the EU slowly giving up its ambitions to convince other producers and consumers to play by the same rules as the EU. Pushing for the energy charter (ECT) and acting on a geopolitical agenda is not politically reconcilable. The EU must hence be prepared to make sacrifices if it wants to act on the global arena by the same rules as other great powers.

Tackling Market Failures and External Exploitation of Loopholes

The electricity market was liberalised in July 2007, but the gas sector is still plagued by problems. The process of ownership unbundling is one of the most important efforts by the EU, but the process is highly tedious and complex, which puts constraints on liberalisation. Cross-ownership makes unbundling difficult and currently, it seems as though the EU has opted for an approach to increase transparency (as a solution to price manipulation).

So far, the EU has failed to deal with a situation where European actors are increasingly being denied access to Russian upstream markets, while at the same time Russian actors are gaining access to downstream markets. Paradoxically, the strongest response to this challenge would be to form a large and strong European energy monopoly, a solution that would contradict the liberalisation efforts of the EU.

While Russia is hedging its strategic sectors and taking advantage of the openness in Europe, new members, for example Poland, are flirting with the idea of protecting their own strategic sectors. This would be a step backwards in EU development. Unless the large powers of Europe divide their national champions first, the energy champions will most likely take over the energy companies in smaller states. An even greater risk is that small- and medium-sized European companies will be bought by strong external actors, i.e. Gazprom. Thus liberalisation has not solved any of the problems, even if liberalisation is meant to cut profit margins in gas distribution and thereby reduce foreign interest in European domestic assets.

Gas Deficits and Nationalisation Schemes

Russia claims that it will only invest in new oil and gas fields if it can pre-sell the outcome of its investments to Europe. This can be interpreted as a method of pushing responsibilities, and partially also costs, for guarantees of supplies from the producer to the consumer. Implicitly – it is a threat. Unless Europe adheres to Russian long-term contracts, supplies cannot be guaranteed. The situation is serious since explicit

statements of concerns have been heard from Russian officials and CEOs of energy companies that it might be unable to guarantee deliveries to all European states during cold winter days. This is not as a result of a political strategy, but because of a mismanaged and protectionist energy sector.

Explicit and blunt nationalisation schemes have been seen in Venezuela, something that has spooked foreign companies. In Russia, a form of 'shady nationalisation' has also been evident, with the Kremlin forming a 'politically correct market economy' where states act on a more or less open market, but do so in a way that at least does not contradict the intentions of the Kremlin. The point is that while the EU is liberalising its energy sector, the number of open energy markets elsewhere is decreasing.

Price volatility is often seen as a problem but it is also evidence of a functioning market. Europe cannot call for mechanisms to reduce volatility and at the same time increase the usage of market regulators in bilateral trade. Concerning natural gas, talk of a 'market price' is wrong. The setting of the price is basically a gradual price rise up to the level that Gazprom has decided every importer should pay. The highest price is accepted as a market price.

A Russian-led gas cartel is slowly emerging but further development is necessary for it to gain clout. Today, it is a paper tiger. When prices are high, there are no real incentives for price collaboration. Advanced forms of cooperation will take time to develop. However, such a cartel could decide on export routes and divide the market between its members, thus maximising prices in the long-term perspective. The politicised nature of the cartel is emphasised by the inclusion of Venezuela, a state that has good relations with Russia but that lacks any serious assets of gas.

Creation of a European or transatlantic gas-NATO as a response to producer power would be counter-productive, but mechanisms within the EU concerning solidarity might be an open road. Awarding NATO the responsibility of becoming a consumer watchdog would provide a dangerous precedent for the future system of energy trade. A reciprocal act by producers would be to use a military alliance to keep prices high, a development more threatening than the emerging gas cartel.

Diversification Efforts and Threats to Supplies

Some of the EU's diversification is in fact artificial. Some efforts are not diversification of producer, only of supply route (one example is the Nord Stream project). When the EU tries to diversify in terms of producers, for example by taking gas from Central Asia instead of Russia, gas is still delivered by Russian pipelines. When alternatives to the volatile Middle East are sought, Russia is the option at hand and when the politically unreliable Russia is to be replaced, volatile states such as

Iraq and Iran are at hand. This is an endemic situation that shows that the EU's diversification efforts are not a cure to all problems. More efforts ought to be made when it comes to diversification of fuel types. Reducing demand rather than increasing supplies should be the highest priority.

The largest global risks of interruptions in oil supply stem from major events, such as wars, potential blockades of the Hormuz strait or the fall of the House of Saud. To single importers, natural disasters and threats to the physical safety of energy infrastructure pose the greatest danger to loss of supplies. Politically underpinned cuts in supplies are of less importance when it comes to the great volumes of oil or gas, but might prove to be politically difficult to tackle for Europe. The Soviet Union never cut supplies of gas to Europe, but Russia has resorted to this practice on numerous occasions since 1990 – even to EU and NATO members.

The fundamental challenge for the EU is that while it criticises Russia's track-record of unreliability and seeks other channels of energy imports, at the same time it provides a legitimate argument for Russia to question Europe's reliability as a consumer. Russia is interested in security of demand, while Europe is interested in security of supplies. Hence, there is a risk of Russia and Europe turning away from each other even if their proximity would provide excellent grounds for further trade. This is what has been called Europe's 'energy dilemma'.

Geopolitical Competition

The major challenges for Europe's energy supplies, in a political sense, are not found around the North Sea, but in Russia/former Soviet Union and in Africa. In these regions, competition among important consumers, especially Europe, China and the US, is a hot topic. Some analysts warn of looming resource wars, but claiming that resource wars are inevitable removes attention from other problems, such as mismanagement, lack of democracy and market competition. Competition over resources is not the same as conflict and today it seems that the risk of resource wars is exaggerated.

Moscow has made a strategic choice to turn towards Europe. This posture, and the physical location of existing energy infrastructure, ensure Europe's place as a natural customer of Russian resources – especially natural gas. Concerning oil, however, Russia could target China, Japan or the US much more easily, should it ever need to do so. In response to international criticism of Russia's energy policy, Putin has threatened to turn eastwards, towards Japan and China, where 'more grateful' receivers of energy are found. This might invoke a European culture of appeasement. Nonetheless, there are physical limitations to Russia's ability to realise its threat in the short run. Russia is interested in good relations with the EU as whole, but not necessarily with all individual members.

Only a few issues are dealt with on the aggregated EU-Russia level, partly because not all European states are members of EU, and partly because most states pursue their own agendas and therefore opt for bilateral policies towards producers. This is a circumstance that is promoted by Russia. It prefers a situation where it can deal directly with Brussels when it suits Russia and go for bilateral approaches when Brussels is difficult to tackle or lacks the authority to be decisive. This disunity is of benefit to Russia when dealing with Europe and Russia is known to sow dissension in Europe. The EU has not yet taken any actions to prevent single members from entering long-term contracts that other members consider problematic.

As indicated above, Europe is somewhat naïve in its energy posture. For example, there is a common misunderstanding in Europe that the EU's way of conducting energy policy and trade in energy resources is the 'normal way'. In fact, the international energy scene is a harsh environment where almost all actors use coercive means to advance their interests. The European *modus operandi* is an exception to the rule. If the EU were to take a common stand as a consumer group, it would be easier to affect producers and more difficult for producers to set the rules of the game and exploit differences between EU members. The core problem is that the lack of a common value community between states such as Russia and the EU may also hinder development of a common market, for example for natural gas. Agreements based on asymmetrical dependence will not provide the sought-after stability.

Appendix 1: European Energy in the Rear-view Mirror

Capturing the energy production, consumption and import situation concerning oil, gas, electricity, coal and other energy sources for 25 highly disparate countries over a time period of almost 25 years is an overwhelming task. Thus, the following sections just provide a minor outline and a few selected graphs in order to underline important trends. Detailed analysis and scenarios for the future can be found elsewhere.¹²⁶

Natural Gas

Europe's total final consumption of natural gas has steadily increased since 1980. Domestic production has also risen, although it was levelling out during the mid-1990s. Imports of gas have been pivotal for decades and at no time since 1980 has Europe been self-sufficient. However the period 1996-1997 is a landmark, since at this time, Europe's imports of natural gas became larger than its domestic production, much due to depletion of sources in the North Sea. During this time, imports skyrocketed, which is evident in Figure 6.

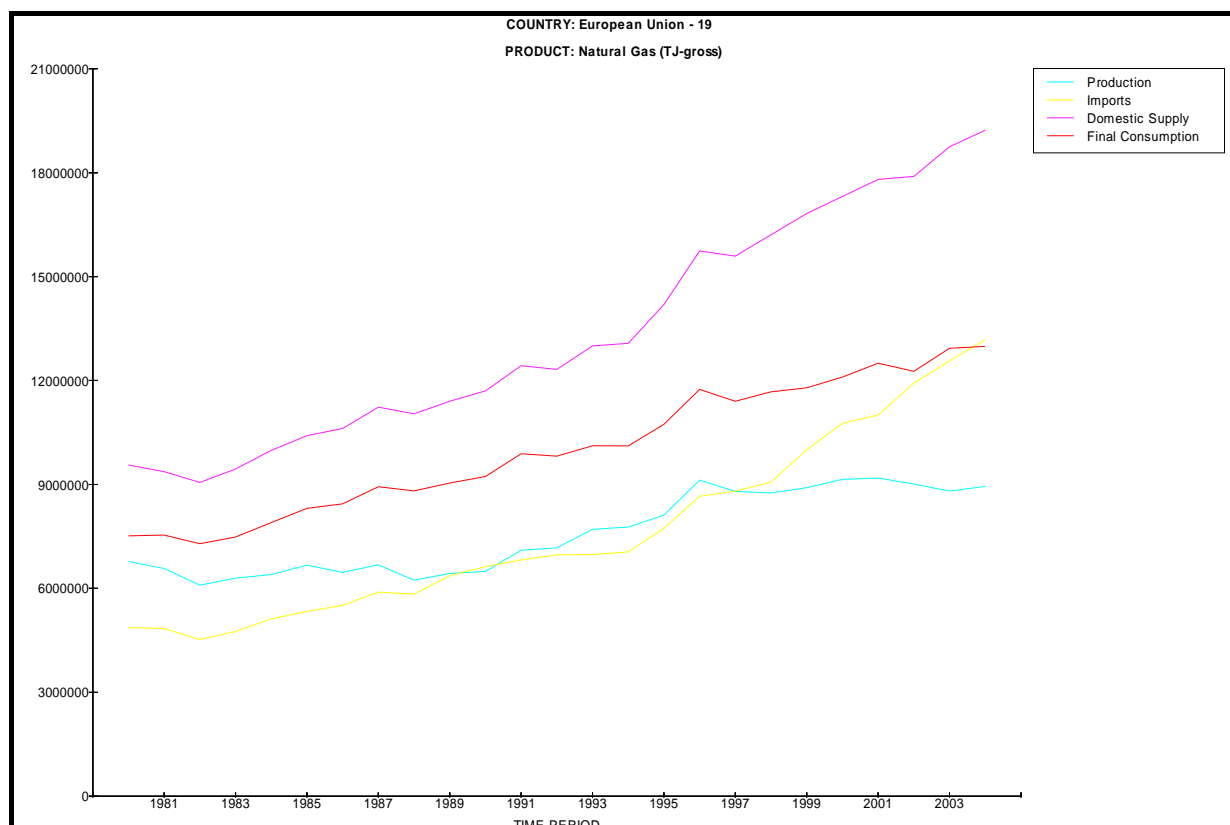


Figure 6: EU production, imports and consumption of natural gas 1980-2004 (Source: IEA).

¹²⁶ See especially: IEA (2006), *World Energy Outlook 2006*, Paris: International Energy Agency (IEA).

Imports of natural gas differ substantially between all European countries and also differ over time. This can be illustrated by looking at the figures for a few selected countries in 1980 and in 2004 respectively, as in Figure 7.

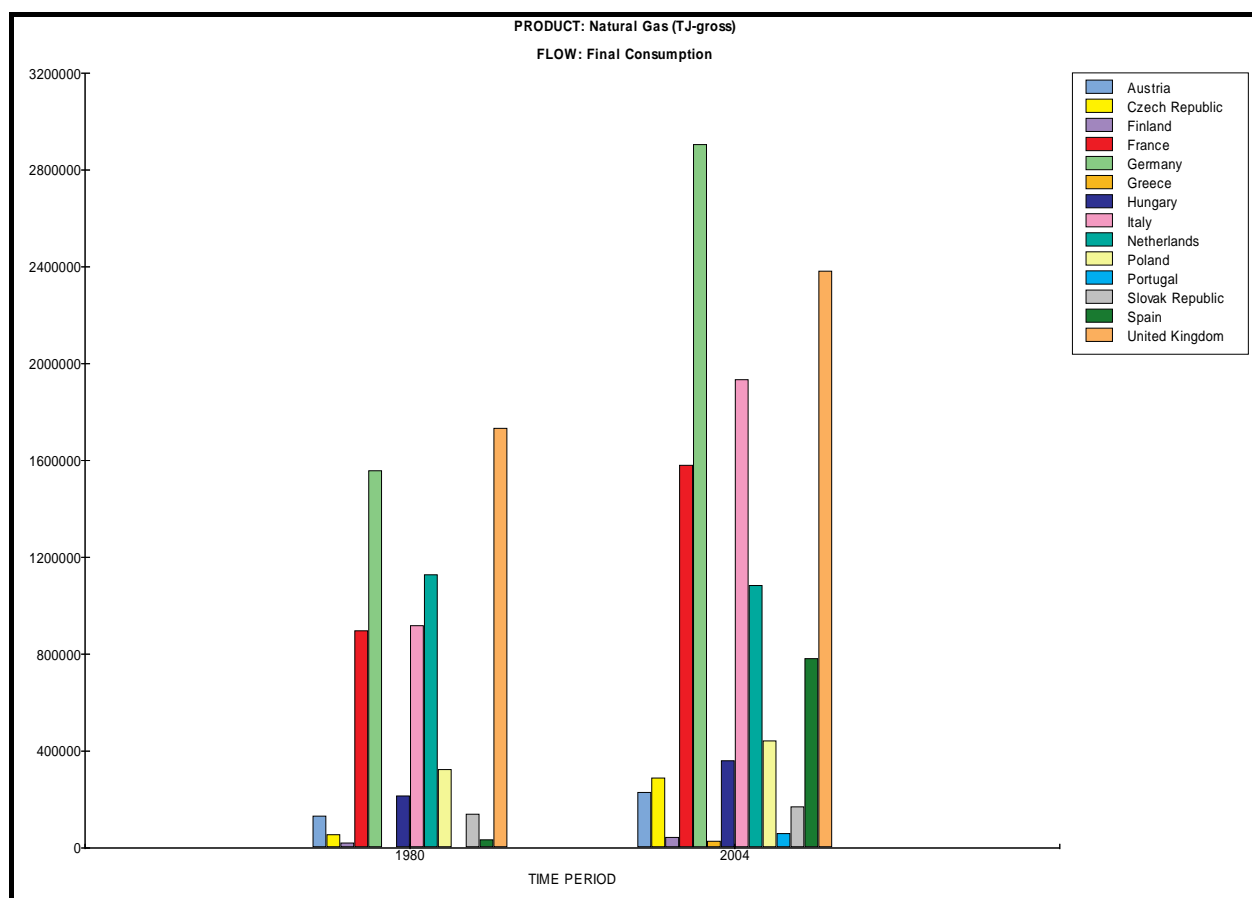


Figure 7: Imports of natural gas by selected European countries 1980 and 2004 (Source: IEA).

Drawing upon Figure 7, three things can be said. First, in terms of real volumes, Germany, Italy, Spain and the Slovak republic have increased their already substantial imports of gas. Secondly, minor importers have also increased their share of imports strongly, for example the Netherlands, the Czech Republic, Greece and Portugal.

If the sources of Europe's gas supplies are scrutinised, it is clear from Table 1 that there are three main sources, namely the North Sea,

Country	% of total imports
Russia	50
Algeria	23
Norway	22
Others	5

Source: EU figures in Energimyndigheten (2006), *Europas naturgasberoende: åtgärder för tryggad naturgasförsörjning* (Eskilstuna: Energimyndigheten), p. 21.

North Africa and Russia.¹²⁷ Globally, Russia, Iran and Qatar are the major producers, but geographical proximity to North Africa and the North Sea is the explanation for their importance to Europe. Since the bulk of the gas is coming from Russia, it is interesting to detail the countries that rely on Russian gas to greatest extent. This is done in Table 2.

Country	% of total imports	% of total consumption
Austria	77	65
Finland	100	100
France	24	23
Germany	37	33
Greece	76	76
Italy	32	26
Netherlands	17	6
EU15	28	18
Czech Republic	74	73
Hungary	86	66
Poland	85	58
Romania	91	29
Slovakia	100	97
Slovenia	60	60
Central/Eastern Europe (12 states)	87	60
Turkey	61	60
Total Europe (28 states)	38	26

Source: Calculated from Cedigaz, Trends and Figures in 2003 from Natural Gas in the World 2003, cited in Stern, Jonathan (2005), *The Future of Russian Gas and Gazprom*, Oxford: Oxford Institute for Energy Studies, p. 143.

Table 2 clearly shows that the eastern part of Europe, which is now included in the EU, is much more dependent on Russian gas than other parts of the EU, in the same way as Spain and Portugal are more dependent on Algeria. The reason is the legacy of the integrated gas infrastructure system of the Warsaw Pact and their geographical location. This dependency index is not necessarily any evidence of high sensitivity.

¹²⁷ See also Energimyndigheten (2006), *Europas naturgasberoende: åtgärder för tryggad naturgasförsörjning*, (Eskilstuna: Energimyndigheten).

For example, Finland imports 100% of its natural gas from Russia, but the gas is of minor importance for power generation and only makes up a small share of its total energy balance. Poland and the Baltic states are in contrast more sensitive than Finland. However, in Europe in general, 70% of its gas imports are used for power generation.¹²⁸

In short, of Russian energy exports 80 per cent of oil exports and 60 per cent of natural gas go to Europe. From Europe's point of view, Russian gas made up 38 per cent of Europe's gas imports in 2003, while today the level is 50 per cent. EU gas production is gradually falling and the net imports will, according to IEA, increase dramatically. In 2030, the import needs will be five or six times higher than gas production. Russia's exports of gas to Europe will not necessarily meet this demand. Any rise in Russian exports could well go to the Pacific instead,¹²⁹ but in the short-term, Europe will be the key market for the bulk of Russian gas. There is an ongoing debate among energy experts on the energy outlook for Europe and some argue that Europe will import less gas from Russia relatively speaking,¹³⁰ while others instead argue that imports from Russia will escalate.¹³¹ Undoubtedly, Russia will continue to play an important role and continued energy cooperation is of special importance for the EU.

Crude Oil

The domestic reserves of crude oil in Europe are limited (Figure 8). Production levels have been relatively constant during recent decades, but the total primary energy supply is closely linked to imports of crude oil. Imports decreased in volume after the oil crises of the 1970s, but since the early 1980s, they have risen again and the level of oil consumption is still very high.

¹²⁸ Stern, Jonathan (2005), 'European Gas Supply and Security Issues', *European Dependence on Russian Energy*, Stockholm, 13 September 2005.

¹²⁹ Murray, Isabel (2005), 'Russian Energy and European Dependence', *"New" Security Threats in Eurasia: Implications for the Euro-Atlantic Space*, Stockholm, 19-20 May 2005.

¹³⁰ Götz, Roland (2002), *Russlands Erdgas und die Energiesicherheit der EU [Russia's Natural Gas and the Energy Security of the EU]*, Berlin: Stiftung Wissenschaft und Politik (SWP), April 2002, S 12, and Götz, Roland (2004), *Russlands Energiestrategie und die Energieversorgung Europas [Russia's Energy Strategy and the Energy Supply of Europe]*, Berlin: Stiftung Wissenschaft und Politik (SWP), Mars 2004, S 6.

¹³¹ Umbach, Frank (2004), 'Europe's Energy Non-Policy', *Internationale Politik (Transatlantic edition)*, No. 4, p. 59.

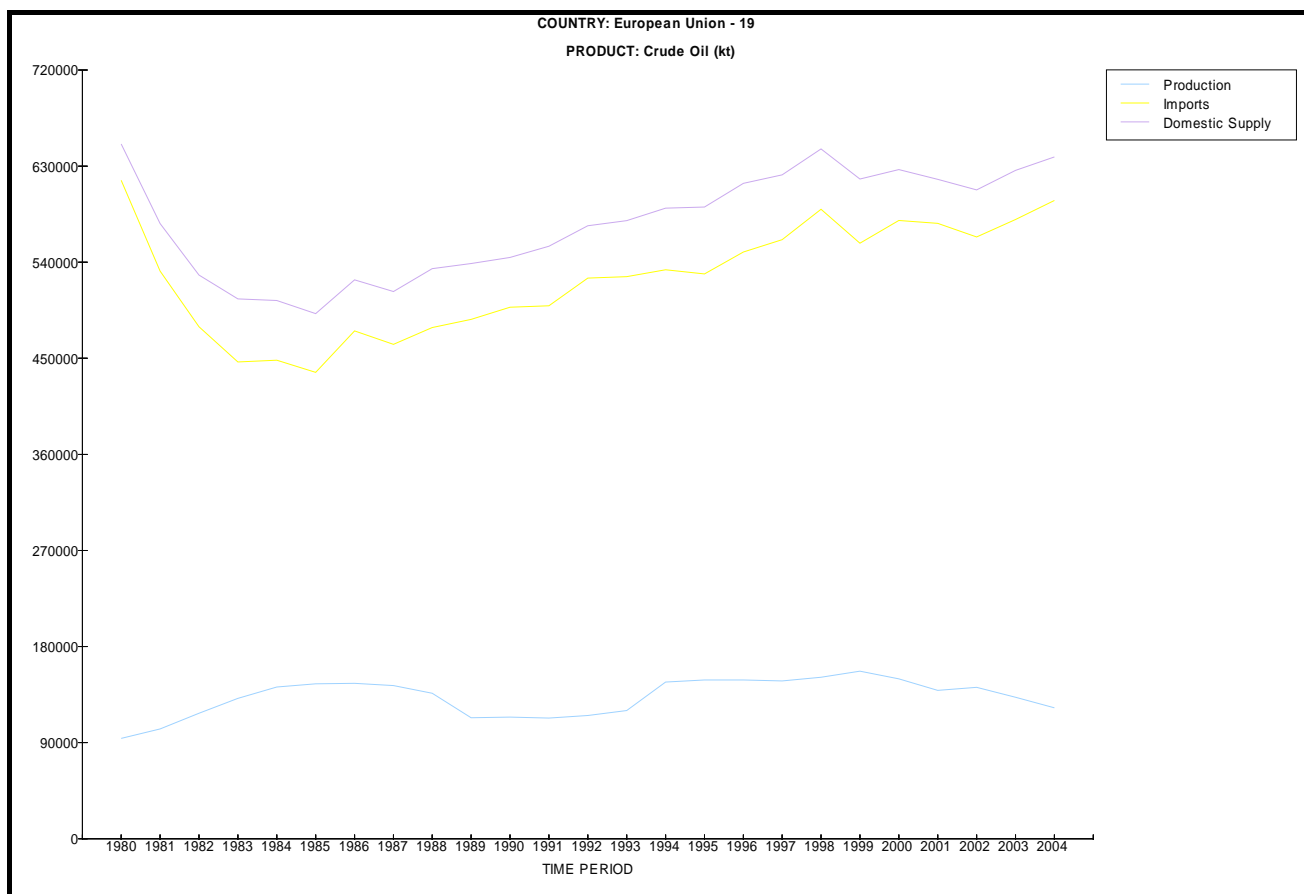


Figure 8: European production, imports and domestic supply of crude oil 1980-2004 (Source: IEA).

While the increasing import trend of crude oil is well-established, it is of interest to compare selected countries in the observed period (Figure 9). If the years 1980 and 2004 are compared, it is clear that the changes in the oil sector are far less than within the gas sector. The relative proportions between the countries have been maintained during the observed time, although the Czech Republic and Portugal have strongly increased their imports of oil. In absolute volumes, Italy, Spain and the UK have also increased their imports.

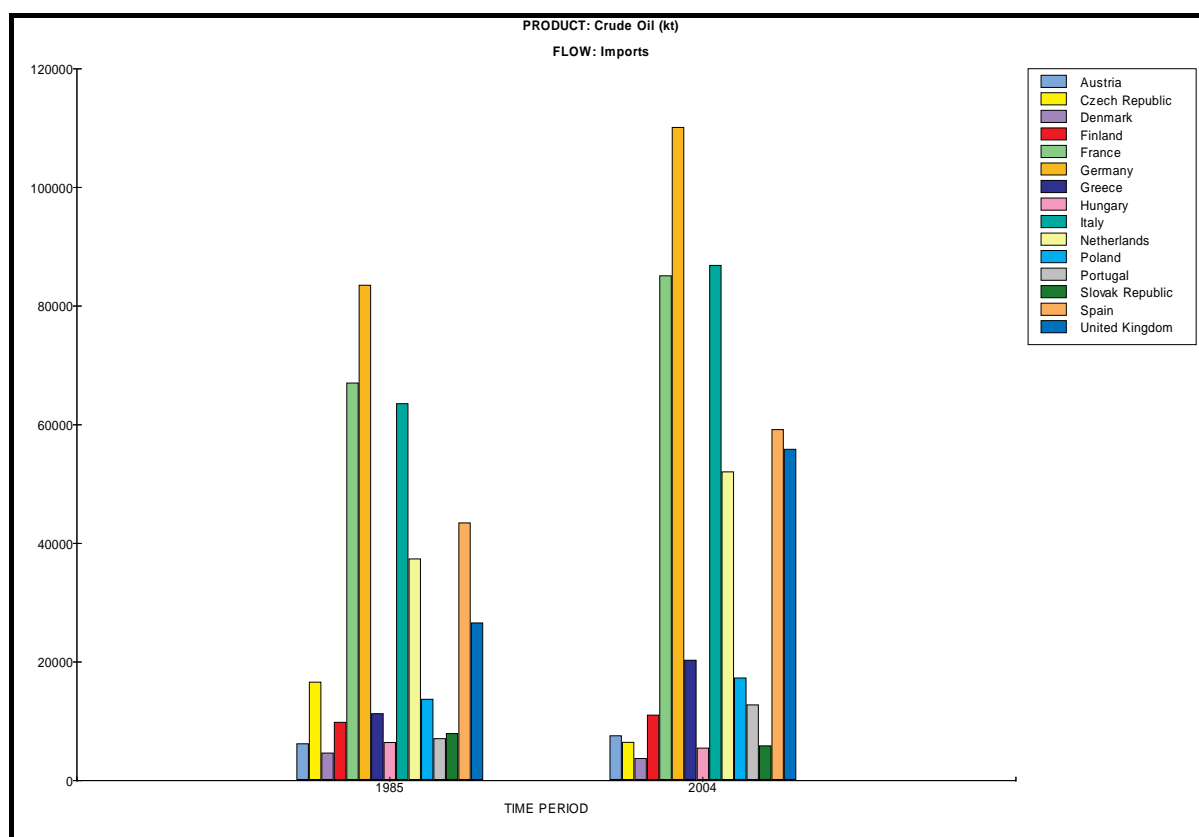


Figure 9: Imports of crude oil by selected European countries 1980 and 2004.

Looking at the exporters of oil to Europe (EU15), it is also clear that the import balance is slightly more diversified than when it comes to natural gas (Table 3). Russia and the former Soviet Union, which is basically Central Asia and Azerbaijan, roughly had a 30 per cent share in 2004, followed by Norway and Saudi Arabia on roughly 20 and 10 per cent respectively.

Origin	2000	2002	2003	2004	Share in % in 2004
Former USSR	89,5	123,2	140,7	158,5	30,8
Norway	114,8	101,6	104,6	104,0	20,2
Saudi Arabia	65,1	53,1	61,5	66,1	12,9
Libya	45,5	38,8	45,7	49,6	9,7
Iran	35,5	25,9	34,7	35,9	7,0
Middle East (other)	13,1	19,6	11,7	9,0	1,7
Others	121,5	110,7	94,5	91,0	17,7
Total imports	485,0	472,9	493,5	513,9	100,0

Source: Organisation for Economic Co-operation and Development.

The conclusion is nonetheless that there is a strong reliance on the greater Middle East and on the former Soviet Union. This means that developments in the Middle East, Russia and Africa, and their policies towards Europe are important.

Electricity

Production and consumption of electricity have increased at a smooth pace over the years (Figure 10). Imports of electricity have been kept at low levels. The explanation is that Europe has produced most electricity domestically, even if the raw materials for power generation have been imported.

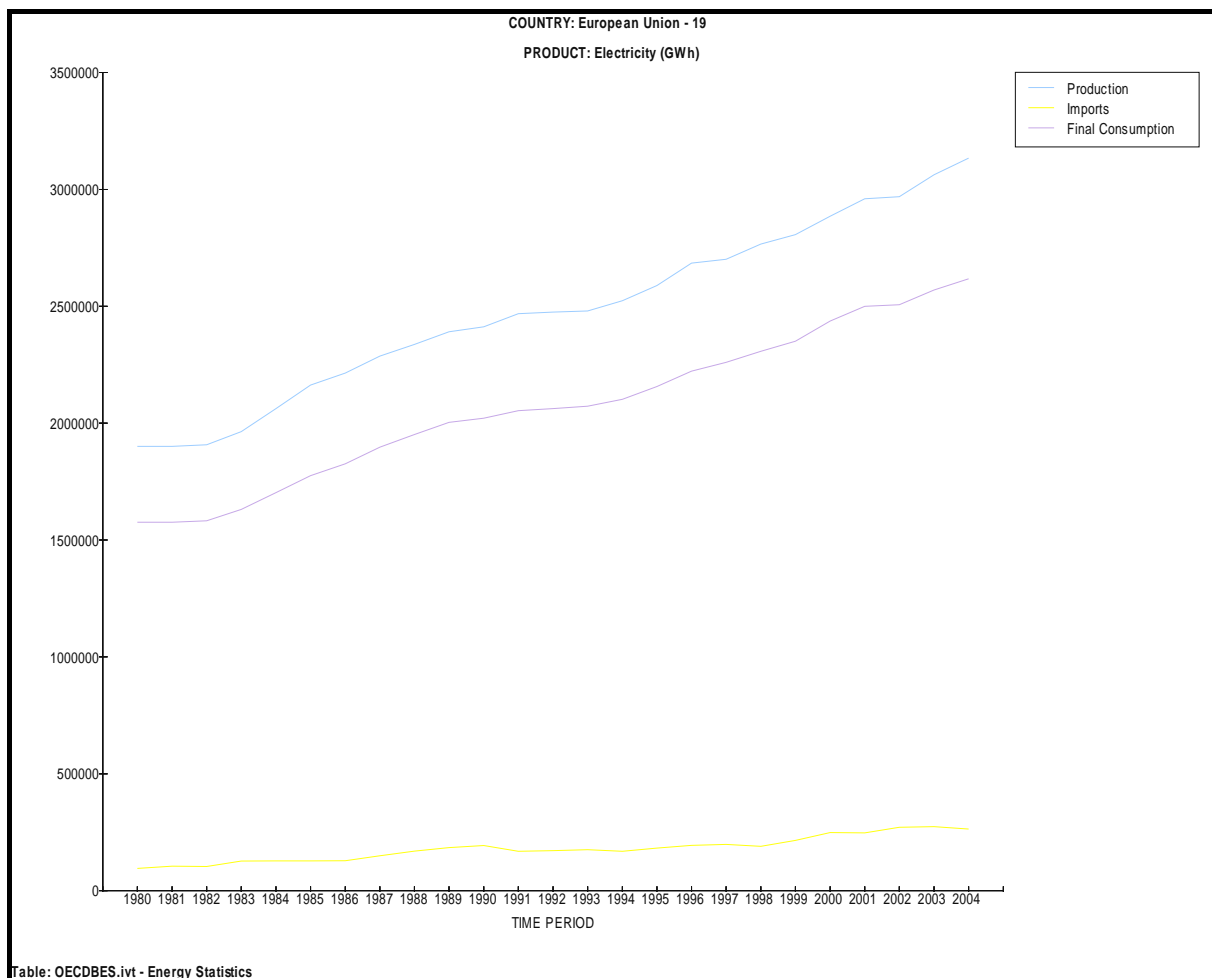


Figure 10: European production, imports and final consumption of electricity 1980-2004 (Source: IEA).

Appendix 2: Acronyms

ASPO	Association for the Study of Peak Oil
BTE	Baku-Tbilisi-Erzurum Pipeline (Azerbaijan-Georgia-Turkey)
BTC	Baku-Tbilisi-Ceyhan Pipeline (Azerbaijan-Georgia-Turkey)
CCS	Carbon Capture and Storage
CIS	Commonwealth of Independent States (FSU excl. Baltic States)
CFSP	Common Foreign and Security Policy of the EU
ECT	Energy Charter Treaty
EEA	European Economic Area
EU	European Union
EU DG COMP	EU Directory General for Competition
EU DG TREN	EU Directory General for Transport and Energy
FSU	Former Soviet Union
GHG	Greenhouse Gases
G8	Group of Eight
KGB	Security Service of the USSR
IEA	International Energy Agency
INOGATE	Interstate oil and Gas Transport to Europe
LNG	Liquefied Natural Gas
NATO	North Atlantic Treaty Organization
OECD	Organization for Economic Cooperation and Development
OPEC	Organization for Petroleum Exporting Countries
VIC	Vertically Integrated Companies
UHL	Unconventional Hydrocarbon Liquids
UN	United Nations
USSR	Soviet Union
WTO	World Trade Organization
GECF	Gas-Exporting Countries' Forum, aka. 'gas-OPEC'

Appendix 3: Glossary

Geography

Baltic States	Estonia, Latvia, Lithuania
Baltic Sea Region	Estonia, Latvia, Lithuania, Russia, Finland, Sweden, Denmark, Germany, Poland
Central Asia	Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, Tajikistan
Caucasus (South)	Georgia, Azerbaijan, Armenia
Caspian Region	Azerbaijan, Russia, Kazakhstan, Turkmenistan, Iran
Europe	See footnotes in Introduction section

Pipelines

Nord Stream	Gas pipeline from Russia to Germany under the Baltic Sea (planned)
Blue Stream	Gas pipeline from Russia to Turkey under the Black Sea (existing)
Blue Stream II	Gas pipeline from Russia to Turkey under the Black Sea (planned)
South Stream	Gas pipeline from Russia to Bulgaria under the Black Sea (planned)
Nabucco	Gas pipeline from Turkey to Central Europe via the Balkans (planned)
Burgas-Alexandroupolis	Oil pipeline from Bulgaria to Greece via the Balkans (planned)
Baku-Tbilisi-Ceyhan (BTC)	Oil pipeline from Azerbaijan via Georgia to Turkey's south coast (existing)
Baku-Tbilisi-Erzurum (BTE)	Gas pipeline from Azerbaijan via Georgia to central Turkey (under construction)

Energy Terms

Diversification of distribution	Usage of various local/regional distributors
Diversification of energy sources	Usage of various types of fuel (oil, coal, gas etc)
Diversification of producer	Imports of energy from various producers
Diversification of supplier	Imports of energy via various suppliers
Energy safety	Physical safety of energy infrastructure
Energy security	Safety, security of supplies and all related security political aspects
Energy sources/types	Type of energy (oil, gas, coal etc.)
Energy supplier	State that delivers energy
Energy producer	State that extracts/produce energy (e.g. oil or gas)
Interconnector	Physical connections for redistribution of energy between several users/importers
Ownership unbundling	Splitting ownership of energy assets
Supply routes	Pipeline stretch/route or sea-lanes
Security of supplies	Reliability of supplies (usually in non-politically sense)

References

- Aleklett, Kjell (2005), 'Radetzki berättar bara halva sanningen [Radetzki is only Telling Half of the Truth]', *Svenska Dagbladet*, Published: 14 July 2005, Last accessed: 25 July 2005, Internet:
http://www.svd.se/dynamiskt/brannpunkt/did_10121897.asp.
- Andrews-Speed, Philip (2003), 'Energy Security in East Asia: A European View', *Symposium on Pacific Energy Cooperation*, Tokyo, 12-13 February 2003.
- Andrews-Speed, Philips (2006), 'China's Energy Policy and its Contribution to International Stability', in: Zaborowski, Marcin (Ed.) *Facing China's Rise: Guidelines for an EU Strategy*, (Paris: Institute for Security Studies), pp. 71-81.
- ASPO (2005), 'The General Depletion Picture', *ASPO Newsletter*, No. 2, April 2005 pp.
- Bronson, Rachel (2006), *Thicker than Oil: America's Uneasy Partnership with Saudi Arabia*, (Oxford: Oxford University Press).
- Bugajski, Janusz (2006), 'Energy Policies and Strategies: Russia's Threat to Europe's Energy Security', *Insight Turkey*, Vol. 8, No. 1, pp. 141-148.
- Cambell, C.J. (1988), *The Coming Oil Crisis*, (Brentwood: Multi-Science Publishing Company and Petroconsultants S.A.).
- Carlsson-Kanyama, Annika, Holmgren, Åke J., Jönsson, Thomas and Larsson, Robert L. (2007), *Perspektiv på energisäkerhet*, Stockholm: Totalförsvarets forskningsinstitut (FOI), FOI-R-2250-SE.
- Correljé and Linde, van der (2006), 'Energy Supply Security and Geopolitics: A European Perspective', *Energy Policy*, No. 34, pp. 532-543.
- Douglas, John Keefer, Nelson, Matthew G. and Schwartz, Kevin (2006), *Fuelling the Dragon's Flame: How China's Energy Demands Affect its Relationship in the Middle East*, Washington D.C.: U.S.-China Economic and Security Review Commission, 14 September 2006,
- Economist (2007), 'A Bear at the Throat', *The Economist*, No., 14 April 2007 pp. 27-29.
- Egenhofer, Christian and Legge, Thomas (2001), *Security of Energy Supply: A Question for Policy or the Markets?*, Center for European Policy Studies, 1 November 2001, N/A.
- Energimyndigheten (2006), *Europas naturgasberoende: åtgärder för tryggad naturgasförsörjning*, (Eskilstuna: Energimyndigheten).

- Energy Charter Secretariat (2004), *The Energy Charter Treaty and Related Documents*, Energy Charter Secretariat,
- EU-kommissionen (2000), *Grönbok: Mot en europeisk strategi för trygg energiförsörjning*, Bryssel: EU-kommissionen, 29 november 2000, KOM (2006)769 Slutgiltig.
- EU Commission (2003), 'Conclusions of the Round Table on Energy Strategies Held in the Context of the EU-Russia Energy Dialogue's Conference on the Comparative Analysis of European and Russian Energy Strategies', *The European Commission's Delegation*, Published: 17 October 2003, Last accessed: 25 April 2005, Internet: www.delrus.cec.eu.int/en/images/pText_pict/217/Energy%20RT%20Conclusions.doc.
- EU Commission (2006a), *An External Policy to Serve Europe's Energy Interests*, European Union, S160/06.
- EU Commission (2006b), *Green Paper: A European Strategy for a Sustainable, Competitive and Secure Energy*, Brussel: The EU Commission, 8 March 2006, COM (2006)105 Final.
- EU DG Tren (1999a), *European Union Energy Outlook to 2020*, Brussels: EU DG Tren,
- EU DG Tren (1999b), *European Union Energy Outlook to 2020: Executive Summary*, Brussels: EU DG Tren,
- EU DG Tren (2003), *European Energy and Transport - trends to 2030: Executive Summary*, Brussels: EU DG Tren,
- EU DG Tren (2007), 'Security of Gas Supply', *EU DG Tren*, Published: 5 February 2007, Last accessed: 8 May 2007, Internet: http://ec.europa.eu/energy/gas/sos/index_en.htm.
- EU Kommissionen (2006), *Prospects for the Internal gas and Electricity Market: Meddelande från Kommissionen till Europaparlamentet och Europeiska rådet*, Bryssel: Eu Kommissionen, KOM 2006:841.
- EU Kommissionen (2007), *En energipolitik för Europa: Meddelande från Kommissionen till Europeiska rådet och Europaparlament* Bryssel: 10 January 2007, KOM 2007:12.
- European Council (2006), *Brussels European Council 23/24 March 2006 - Presidency Conclusions*, Brussels: European Union, 18 May 2006, 7775/1/06.
- Europeiska unionen (2003), *Ett säkert Europa i en bättre värld: EU:s säkerhetsstrategi* Bryssel: Europeiska unionen, 12 december 2003,

- Fachinotti, Matteo (2007), 'Will Russia Create a Gas Cartel?' *Russian Analytical Digest*, Vol. N/A, No. 3, pp. 14-14.
- Fredholm, Michael (2005), *The Russian Energy Strategy and Energy Policy: Pipeline Diplomacy or Mutual Dependence?*, Swindon: Conflict Studies Research Center, September 2005, 05/41.
- Fredholm, Michael (2006), *Gazprom in Crisis*, Swindon: Conflict Studies Research Centre (CSRC), October 2006, 06/48.
- Grib, Nataliya (2006), 'Gazprom Cuts Gas Supply to Europe', *Kommersant*, Published: 19 January 2006, Last accessed: 19 January 2006, Internet: <http://www.kommersant.com/doc.asp?idr=500&id=641939>.
- Götz, Roland (2002), *Russlands Erdgas und die Energiesicherheit der EU [Russia's Natural Gas and the Energy Security of the EU]*, Berlin: Striftung Wissenschaft und Politik (SWP), April 2002, S 12.
- Götz, Roland (2004), *Russlands Energiestrategie und die Energieversorgung Europas [Russia's Energy Strategy and the Energy Supply of Europe]*, Berlin: Stiftung Wissenschaft und Politik (SWP), Mars 2004, S 6.
- Hedenskog, Jakob and Larsson, Robert L. (2007), *Russian Leverage on the CIS and the Baltic States*, Stockholm: Swedish Defence Research Agency (FOI), June 2007, FOI-R-2280--SE.
- Hirsch, Robert L., Bezdek, Roger and Wendling, Robert (2005), *Peaking of World Oil Production: Impacts, Mitigation and Risk Management*, SAIC, February 2005, N/A.
- IEA (2006), *World Energy Outlook 2006*, Paris: International Energy Agency (IEA),
- Itoh, Shoichi (2007), 'Sino-Russian Energy Relations: The Dilemma of Strategic Partnership and Mutual Distrust', in: Kimura, Hiroshi (Ed.) *Russia's Shift toward Asia*, The Sasakawa Peace Foundation), pp. 63-77.
- Jakobson, Linda and Daojiong, Zha (2006), 'China and the Worldwide Search for Oil Security', *Asia-Pacific Review*, Vol. 13, No. 2, pp. 60-73.
- Kiesow, Ingolf (2003), *Energy in Asia: an Outline of Some Strategic Energy Issues in Asia*, Stockholm: Swedish Defence Research Agency (FOI), FOI-R--0739--SE.
- Kiesow, Ingolf (2004), *China's Quest for Energy: Impact upon Foreign and Security Policy*, Stockholm: The Swedish Defence Research Agency (FOI), FOI--1371--SE.
- Kiesow, Ingolf (2007), *India's Quest for Energy Security*, Stockholm: Swedish Defence Research Agency (FOI), February 2007, FOI Memo 2003.

- Klare, Michael T (2001), *Resource Wars: the New Landscape of Global Conflict*, (New York: Metropolitan Books).
- Klare, Michael T (2004), *Blood and Oil: The Dangers and Consequences of America's Growing Dependency on Imported Petroleum*, (New York: Metropolitan Books).
- Larsson, Robert L. (2006a), *Russia's Energy Policy: Security Dimensions and Russia's Reliability as an Energy Supplier*, Stockholm: Swedish Defence Research Agency (FOI), Scientific Report FOI-R--1934--SE.
- Larsson, Robert L. (2006b), *Sweden and the NEGP: A Pilot Study of the North European Gas Pipeline and Sweden's Dependence on Russian Energy*, Stockholm: The Swedish Defence Research Agency (FOI), FOI-R-1984-SE.
- Larsson, Robert L. (2007), *Nord Stream, Sweden and Baltic Sea Security*, Stockholm: Swedish Defence Research Agency (FOI), March 2007, FOI-R--2251-SE.
- Leijonhielm, Jan, Knoph, Jan T., Larsson, Robert L., Oldberg, Ingmar, Unge, Wilhelm and Vendil Pallin, Carolina (2005), *Rysk militär förmåga i ett tioårsperspektiv - problem och trender 2005 [Russian Military Capability in a Ten-Year Perspective - Problems and Trends 2005]*, Stockholm: Swedish Defence Research Agency (FOI), June 2005, User Report, FOI-R--1662-SE.
- Leijonhielm, Jan and Larsson, Robert L. (2004), *Russia's Strategic Commodities: Energy and Metals as Security Levers*, Stockholm: Swedish Defence Research Agency (FOI), FOI-R--1346--SE.
- Lo, Bobo (2003), *Vladimir Putin and the Evolution of Russian Foreign Policy*, (London: Blackwell/Royal Institute of International Affairs).
- Loskot-Strachota, Agata (2006), *The Russian Gas for Europe*, Warsaw: Centre for Eastern studies (OSW), October 2006,
- Menkiszak, Marek (2006), *Russia vs. the European Union: a "Strategic Partnership" Crisis*, Warsaw: Centre for Eastern Studies (OSW), January 2006, 22.
- Milov, Vladimir (2005a), 'Problemi energeticheskoi politiki Rossii [Problems of Russia's Energy Policy]', Moscow, 1 February 2005.
- Milov, Vladimir (2005b), *Russian Energy Sector and its International Implication*, Moscow: Institute of Energy Policy, 30 March 2005, Discussion Paper,
- Ministry of Industry and Energy (2003), 'Energeticheskaya Strategiiia Rossii na period do 2020 goda [Russia's Energy Strategy until the Year 2020], Utverzhdena no 1234-r, 28 August, 2003.' *Ministerstvo promyshlennosti i energetiki Rossii*,

- Published: Last accessed: 7 February 2005, Internet:
<http://www.mte.gov.ru/docs/32/189.html>.
- Moe, Arild (2006), 'Shtokman-beslutningen: Forklaringar og Implikasjoner [The Shtokman Decision: Explanations and Implications]', *Nordiskt Östforum*, No. 4.
- Monaghan, Andrew (2007), *Russia and the Security of Europe's Energy Supplies: Security in Diversity?*, Swindon: Conflict Studies Research Centre (CSRC)/Defence Academy of the United Kingdom, January 2007, 07/01.
- Murray, Isabel (2005), 'Russian Energy and European Dependence', "*New*" *Security Threats in Eurasia: Implications for the Euro-Atlantic Space*, Stockholm, 19-20 May 2005.
- Oxford Analytica (2005), 'Disunity Hampers Common Energy Policy', *Oxford Analytica*, Published: 1 December 2005, Last accessed: 2 December 2005, Internet: <http://www.oxan.com>.
- Paszyc, Ewa (2006), *Gazprom in Europe: Faster Expansion in 2006*, Warsaw: Centre for Eastern Studies (OSW), February 2007, N/A.
- Perovic, Jeronim and Orttung, Robert (2007), 'Russia's Energy Policy: Should Europe Worry?' *Russian Analytical Digest*, Vol. N/A, No. 3, pp. 2-8.
- Radetzki, Marian (2005), 'Priset på olja halverat 2010 [Price on Oil Will be Half as Much in 2010]', *Svenska Dagbladet*, Published: 12 July 2005, Last accessed: 25 July 2005, Internet:
http://www.svd.se/dynamiskt/brannpunkt/did_10110577.asp.
- Riley, Alan (2006), 'The Coming of the Russian Gas Deficit: Consequences and Solutions', *CEPS Policy Brief*, No. 116.
- Robelius, Fredrik (2007), *Giant Oil Fields - the Highway to Oil: Giant Oil Fields and Their Importance for Future Oil Production*, (Uppsala: Uppsala Universitet).
- Salehyan, Idean (2007), 'The New Myth about Climate Change', *Foreign Policy*, Published: August 2007, Last accessed: 15 August 2007, Internet:
http://www.foreignpolicy.com/story/cms.php?story_id=3922.
- Sandklef, Kristina (2004), *Energy in China: Coping with Increased Demand*, Stockholm: The Swedish Defence Research Agency (FOI), FOI-R--1435--SE.
- Savic, Vladimir (2006), *Det tysta kriget: olja, makt, kontroll*, (Stockholm: Natur och Kultur).

- Simmons, Matthew R. (2005), *Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy*, (New Jersey: Wiley).
- Smith, Keith C. (2004), *Russian Energy Politics in the Baltics, Poland and Ukraine: A New Stealth Imperialism?*, Washington D.C.: Center for Strategic and International Studies (CSIS), December 2004,
- Smith, Keith C. (2006), *Security Implications of Russian Energy Policies*, Brussels: Centre for European Policy Studies (CEPS), January 2006, CEPS Policy Brief, 90.
- Socor, Vladimir (2007a), 'Nabucco Gas Pipeline Project is Back on Track', *Eurasia Daily Monitor*, Vol. 4, No. 173.
- Socor, Vladimir (2007b), 'South Stream: Gazprom's New Mega Project', *Jamestown*, Published: 25 June 2007, Last accessed: 13 August 2007, Internet: http://www.jamestown.org/edm/article.php?article_id=2372249.
- Socor, Vladimir (2007c), 'Strategic Issues Facing the Nabucco Project', *Eurasia Daily Monitor*, Vol. 4, No. 174.
- Solana, Javier (2006), *Address by Javier Solana EU High Representative for the Common Foreign and Security Policy at the energy conference "Towards an EU External Energy Policy"*, Brussels: The Spokesperson of the Secretary General, High Representative for CFSP, 20 November 2006, S324/06.
- Stern, Jonathan (2005), 'European Gas Supply and Security Issues', *European Dependence on Russian Energy*, Stockholm, 13 September 2005.
- Stern, Jonathan (2006), *The New Security Environment for European Gas: Worsening Geopolitics and Increasing Global Competition for LNG*, Oxford: Oxford Institute for Energy Studies, October 2006, NG15.
- Stern, Jonathan P. (2005), *The Future of Russian Gas and Gazprom*, (Oxford: The Oxford University Press/The Oxford Institute for Energy Studies).
- Umbach, Frank (2004), 'Europe's Energy Non-Policy', *Internationale Politik (Transatlantic edition)*, No. 4, pp. 52-60.
- von Knorring, Hans and Larsson, Robert L. (Red.) (2007), *USA:s energisituation and amerikansk energipolitik*, Stockholm: Totalförsvarets forskningsinstitut (FOI), Augusti 2007, FOI-R-2308-SE.

Selected energy-related publications by the FOI

Holmgren, Å. J.

2007. A framework for vulnerability assessment of electric power systems. In: Murray, A. & Grubestic, T. (eds.). Critical infrastructure: reliability and vulnerability. Springer-Verlag, Berlin.

Holmgren, Å. J., Jenelius, E. & Westin, J.

2007. Evaluating Strategies for defending electric power networks against antagonistic attacks. IEEE Transactions on Power Systems 22, pp 76-84.

Holmgren, Å., Molin, S. & Thedéen, T.

2001. Vulnerability of Complex Infrastructure: Power Systems and Supporting Digital Communication Systems. Proceedings of the 5th International Conference on Technology, Policy and Innovation. Delft 2001: Critical Infrastructures. LEMMA Publishers, Utrecht.

Kiesow I.

Sthlm, FOI 2005. China's Quest for Energy; Impact upon Foreign and Security Policy. Kinas jakt på energi; inverkan på utrikes- och säkerhetspolitik. (FOI-R--1371--SE).

Kiesow I.

Sthlm, FOI 2003. Energy in Asia. An Outline of Some Strategic Energy in Asia. Energi i Asien; En översikt över några strategiska energifrågor i Asien. (FOI-R--0793--SE).

Kiesow I.

Sthlm, FOI 2006. Kina i ett tjugopårs perspektiv. China in a twenty years' perspective. (FOI-R--1927--SE).

Kiesow Ingolf.

Quest for oil, geostrategic thinking. CEF Quarterly, The Journal of the China-Eurasia Forum.

Von Knorring H & Larsson, R. L.

Sthlm, FOI 2007, USA:s energisituation och amerikansk energipolitik, (FOI-R—2308—SE)

Larsson, R. L.

Sthlm, FOI 2007, Sweden, Nord Stream and the Baltic Sea Security, (FOI-R—2251—SE).

Larsson R. L.

Sthlm, FOI 2006. Energisäkerhet: Sveriges och Europas beroende av importerade energibärare. Energy Security: Sweden's and Europe's Dependence on Imported Energy Carriers. (FOI-R--2092--SE).

Larsson R. L.

Sthlm, FOI 2006. Russia's Energy Policy: Security Dimensions and Russia's Reliability as an Energy Supplier. Rysslands energipolitik: Säkerhetspolitiska dimensioner och pålitlighet som energileverantör. (FOI-R--1934--SE).

Larsson R. L.

Sthlm, FOI 2006. Rysslands energipolitik och pålitlighet som energileverantör: Risker och trender i ljuset av den rysk-ukrainska gaskonflikten 2005-2006. Russias energy policy and reliability as energy supplier: risks and trends in the light of the Russian-Ukrainian Gas Conflict 2005-2006. (FOI-R--1905--SE).

Larsson R. L.

Sthlm, FOI 2006. Sweden and the NEGP: A Pilot Study of the North European Gas Pipeline and Sweden's Dependence on Russian Energy.
Sverige och NEGP: En förstudie av gasledningen genom Östersjön samt Sveriges beroende av rysk energi. (FOI-R--1984--SE).

Leijonhielm J., Knoph J. T., Larsson R. L., Oldberg I., Unge W., Vendil Pallin C.

Sthlm, FOI 2005. Rysk militär förmåga i ett tioårsperspektiv - problem och trender 2005. Russian military capability in a ten-year perspective - problems and trends in 2005. (FOI-R--1662--SE).

Leijonhielm J., Larsson R. L.

Sthlm, FOI 2004. Russia's Strategic Commodities: Energy and Metals as Security Levers. Rysslands strategiska råvaror: energi och metaller som säkerhetspolitiska hävstänger. (FOI-R--1346--SE).

Ljung B. (Ed.)

Sthlm, FOI 2003. Irakkriget 2003. En preliminär analys.
The Iraqi War 2003. A preliminary analysis. (FOI-R--0852--SE).

Sandklef K.

Sthlm, FOI 2004. Energy in China: Coping with increasing demand. (FOI-R--1435--SE).

Reports can be downloaded at www.foi.se or ordered at chrber@foi.se.

About the Author

Robert L. Larsson holds a Master's degree in political science and economics and has studied at the universities of Linköping, Uppsala, Edinburgh, Novosibirsk and Tbilisi.

Before joining the FOI, he was a guest researcher at the Georgian Foundation for Strategic and International Studies in Tbilisi. He is a specialist in the field of energy and security policy, most notably in the context of Russia and the Caucasus.

E-mail: robert.larsson@foi.se

Phone: +46 8 – 55 50 37 60



Foto: © Erik Koffmar, 2007.